The London School of Economics and Political Science

Migration and Ethnic Diversity in the Soviet and Post-Soviet Space

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Declaration

I, Youngook Jang, certify that the thesis I have presented for examination for the MPhil/PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).

I declare that my thesis consists of 42,588 words, including footnotes and tables, but excluding front matter, bibliography, and appendices.

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Abstract

This thesis examines the migration patterns shown in the Soviet Union and its successor countries during the late- and post-Soviet periods. I begin by constructing a comprehensive dataset regarding the net migration of major ethnic groups before and after the collapse of the Soviet Union, and then investigate how migration, ethnic diversity, and conflict at the end of the Soviet period affected one another.

The Soviet Union was a multi-ethnic state where members of its diverse ethnic groups showed distinctive migration patterns. However, the quantitative research from the ethnic viewpoint had been limited, mainly because there was no systemic data of the migration patterns of different ethnic groups. The first main chapter of my thesis (Chapter 2), therefore, attempts to construct a dataset of the regional net migration of major ethnic groups. It shows that many members of ethnic groups were dispersed outside of their national territories during the late-Soviet period (ethnic mixing), but the "return" of these groups to their national territories became evident after the dissolution (ethnic unmixing). Then, in the next chapter (Chapter 3), I proceed to quantitative analyses of the determinants of migration emphasising the role of ethnic factors. The results from OLS and Heckman selection estimations support the idea that ethnicity had a large influence on shaping the migration patterns in both the late- and post-Soviet periods, though the direction of influence was the opposite. Lastly, in Chapter 4, I examine whether this migration patterns contributed to changing ethnic diversity in the sending and receiving regions and then to ethnic conflict and violence in these regions, concluding that both were the case.

The results of this thesis are expected not only to help better understanding the Soviet and post-Soviet migration with the enhanced dataset, but also to become a valuable addition to the discourse on the current and historical waves of globalisation and its backlash, given the relevance of the Soviet case.

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Chapter 1. Introduction

In this thesis, I focus on the usefulness of the Soviet and post-Soviet history in exploring the relationship between migration and ethnicity. Quantitative analyses have been rare in the literature when it comes to the ethnic aspect of the Soviet and post-Soviet migration, mainly due to the limited data availability. The biggest contribution of this thesis is to construct a dataset as to the regional net migration of major ethnic groups (Chapter 2), enabling to investigate the effect of ethnic factors on the migration patterns in the late- and post-Soviet periods (Chapter 3). This dataset is also used to uncover the mechanism through which regional ethnic diversity was shaped, and to show that the increase in the diversity due to migration was important in explaining the ethnic conflicts which had occurred at the end of the Soviet era (Chapter 4). Before moving on to the main chapters of this thesis, it seems essential to present why the Soviet Union is relevant to the study of migration and ethnic diversity.

The USSR was home to over 100 ethnic groups, or nationalities[1], who had been given complex status between autonomy and subjection. Notwithstanding the Marxist ideology of internationalism, Lenin and Stalin committed to national self-determination. Soviet authorities regarded the term "nationality (*Natsional'nost'*, in Russian)" equivalent to ethnicity on which they based the establishment of territorial units[2]. The 15 largest ethnic groups were given autonomy over their own union republics and 20 groups over their ASSRs (See Figure 1-1 and Table 1-1). Many ethnic minorities (Poles, Germans, Jews, Koreans, etc.), as well as the above-mentioned "titular nationalities", were provided with a certain extent of autonomy including mother-tongue education, national units in political parties, national quotas in colleges, and so on[3]. In addition to this ethno-territorialism, individual level nationhood was institutionalised by

[1] I used the basic category of *ethnic group* as recorded by the Soviet official statistical agencies, regardless of the status and size of each ethno-cultural entities. For more discussions on terminology, Tishkov, V. *Ethnicity, nationalism and conflict in and after the Soviet Union: The mind aflame* (Oslo, 1997). pp. viii - x

[2] Suny. G., 'Nationalist and ethnic unrest in the Soviet Union', *World Policy Journal*, vol. 6, no. 3 (1989), p. 506

[3] Slezkine, Y., 'The USSR as a communal apartment, or how a socialist state promoted ethnic particularism', *Slavic review*, vol. *53* no. 2 (1994), p.422

ethnic nationality's being a fundamental unit of social accounting and a key element of one's legal status. In effect, nationality was not only identified in censuses and other social surveys but also recorded in almost all bureaucratic documents such as *propiska*[4]. Regarding the nationhood formation in the Soviet Union, Brubaker argues as follows:

> *It was thus through an irony of history … that nationality became and remained a basic institutional building block of the avowedly internationalist, supranationalist, and anti-nationalist Soviet state, with the land partitioned into a set of bounded national territories, the polity composed in part of a set of formally sovereign national republics, and the citizenry divided into a set of legally codified nationalities*[5].

Figure 1-1. The map of the USSR, union republics and ASSRs

Source: Encyclopædia Britannica (retrieved from www.britannica.com/place/Soviet-Union)

[4] *Propiska* is a residency permit designed to control migration. Brubaker, R., 'Nationhood and the national question in the Soviet Union and post-Soviet Eurasia: An institutionalist account', *Theory and Society*, vol. 23 no. 1 (1994), p.53

[5] Ibid., p.54

Table 1-1. List of union republics in the USSR

Union Republics	Year joined	Month/year independent	Area (thousand km)	Population in 1989 (thousands)	Share of titular group (%)
Russia	1922	12/1991	17,075	147,022	81.5
Ukraine	1922	07/1990	604	51,452	72.7
Belorussia	1922	07/1990	208	10,152	77.9
Moldavia	1940	08/1991	34	4,335	64.5
Latvia	1940	05/1990	65	2,667	52.0
Lithuania	1940	03/1991	65	3,675	79.6
Estonia	1940	08/1991	45	1,566	61.5
Georgia	1922	04/1991	70	5,401	70.1
Azerbaijan	1922	08/1991	87	7,021	82.7
Armenia	1922	09/1991	30	3,305	93.3
Kazakhstan	1936	12/1991	2,717	16,464	39.7
Uzbekistan	1924	08/1991	447	19,810	71.4
Kirghizia	1936	08/1991	198	4,258	52.4
Turkmenia	1924	10/1991	488	3,523	72.0
Tajikistan	1929	09/1991	143	5,093	62.3

Source: Encyclopædia Britannica (retrieved from www.britannica.com/place/Soviet-Union), 1989 USSR census

On the other hand, the Soviet Union had never deviated from the goal of ultimate merger (*sliyanie*) of all nationalities into one Soviet people[6]. While patriotic rituals and internationalist education were promoted to build a Soviet identity[7], population redistribution policy was also implemented to neutralise national consciousness based on land[8]. The titular nationalities had not been confined to their own autonomous territories but kept being sent, or encouraged to move, towards less developed and less densely-populated regions under the slogan of balanced regional development and "ethnic equalisation[9]". The authorities first used coercion, especially

[6] Huttenbach, H., 'Introduction: Towards a Unitary Soviet State: Managing a multinational society, 1917-1985', in Huttenbach, H. (ed.) *Soviet Nationality Policies: Ruling Ethnic Groups in the USSR* (London ,1990), p.5

[7] Collias, K., 'Making Soviet citizens: Patriotic and internationalist education in the formation of a Soviet state identity', in Huttenbach, *Soviet Nationality Policies*, pp.75-77.

[8] Schwartz, L. 'Regional population redistribution and national homelands in the USSR', in Huttenbach, *Soviet Nationality Policies*, p.149

[9] Ethnic equalisation refers to the set of nationality policies which aim to promote the socioeconomic levels of ethnic minorities. Jones, E. and F. Grupp, 'Modernisation and Ethnic Equalisation in the USSR', *Soviet Studies* vol. 36 no. 2 (1984), p.159

in the Stalinist era, but later tried to induce migration which they thought was desirable through incentivising mechanisms, such as offering higher wages and longer vacation to the workers settled in the northern and eastern part of Russia[10].

At the verge of the historic regime shift in 1991, the seemingly contradictory nationality and migration policies of the Soviet Union had created a unique setting where many members of ethnic groups who preserved their national identities found themselves in the places which did not use to be their "home[11]". The number of Soviet people living outside their titular national territory in 1989 was 73 million, among which 25 million were ethnic Russians, and 12 million were non-Russians in Russian SFSR[12]. Also, ethnic mixing did seem to occur as the average of union republic level ethnic fractionalisation indices (FRAC) went up from 0.37 in 1939 to 0.40 in 1989[13].

Then there occurred a sudden breakup. The dissolution of the Soviet Union brought dramatic changes to the status and thus the migration patterns of the members of its diverse ethnic groups. While the restrictions on migration were mostly lifted, non-indigenous people suddenly became diaspora in the lands where they had used to have no legal barrier to reside. They faced up to the nationalist policies of independent former Soviet Union (FSU) republics, as the demand for independence was translated into discriminative policies against non-titular ethnic groups during the state-building process in the 1990s[14]. These formed both a push factor driving the non-indigenous groups away from their living places and a pull factor attracting titular groups to their own national region. Naturally, those who were spread across the Soviet

[10] Gibson, J., 'Interregional migration in the USSR, 1981–1985 and 1971–1975', *The Canadian Geographer/Le Géographe canadien*, vol. 35 no. 2 (1991), p. 147-8

[11] I will use the term "home" to refer to the national territory of a member of an ethnic group, even though he or she had never lived there. Therefore, the term "return" (to their home) will be often used rather symbolic.

[12] Brubaker, 'Nationhood (1994)', p.57

[13] Calculated by author using census data. FRAC indicates the probability that two randomly chosen persons are in the different ethnic groups. The average of regional FRACs and the FRAC of the whole USSR should be different. See Section II, Chapter 4 for detail.

[14] For example, most Central Asian FSU states explicitly discriminated Russian-speaking population in employment or education. The details will be discussed later. Korobkov, A., 'State and nation building policies and the new trends in migration in the former Soviet Union', *The Carl Beck Papers in Russian and East European Studies* no.1702 (2003)

territory began to return to their national homeland, resulting in ethnic unmixing[15]. The ethnic unmixing not only involved the return migration of titular ethnic groups to the independent union republics but also was prompted by the emigration of ethnic minorities to where their ancestors had come from, even if this was outside the Soviet Union (e.g. Jews to Israel, ethnic Germans to Germany)[16].

Having mentioned the uniqueness of the late- and post-Soviet space, it was not the only place where different ethnic groups move and live together. According to the recent report of the United Nations, there are 258 million international migrant stock in 2017, accounting for 3.4 per cent of the total world population[17]. If one considers high-income countries only, the share of immigrants goes up to 13.2 per cent[18]. The case of high diversity caused by mass migration can also be found at the turn of the twentieth century, when around 55 million Europeans moved to the New World in less than 65 years[19]. The Soviet case is just one example of the people mixing with those from different ethnic and cultural background, though it was the result of internal rather than international migration, and was often initiated involuntarily.

The ethnic unmixing after the dissolution also resembles the backlash which has been observed cyclically at the end of the major waves of globalisation. The recent rise of the worldwide blood-and-soil type nationalism can be interpreted as an organisational resistance to the all-time high immigration and ethnic diversity levels[20]. Again, globalisation in the early twentieth century faced a similar policy backlash, represented in the US by Immigration Act in 1917 or Emergency Quota Act in 1921, both of which aimed to restrict the influx of

[15] Ethnic unmixing is the process where migration decreases ethnic or national heterogeneity in the receiving regions. Brubaker, R., 'Migrations of ethnic unmixing in the "New Europe"', *International migration review* vol. 32 no.4 (1998), p.1059

[16] Heitman, S., 'Soviet emigration since 1985', *Nationalities Papers* vol. 22 no.1 (1994), pp. 247-261

[17] UNDESA, Population Division, *International Migration Report 2017* (ST/ESA/SER.A/404) (New York, 2017)

[18] World Bank Data (retrieved from data.worldbank.org/indicator/SM.POP.TOTL.ZS?view=chart)

[19] Hatton, Timothy J., and Jeffrey G. Williamson. *The Age of Mass Migration: Causes and Economic Impact* (Oxford, 1998)

[20] The Economist, 19 November 2016 (retrieved from www.economist.com/international/2016/11/19/league-of-nationalists)

immigrants[21]. Nationalist policies are by nature discriminative against non-indigenous people and likely to prevent further immigration or drive out the present immigrants. This may result in ethnic unmixing, which was observed during the post-Soviet period.

Therefore, exploring the Soviet and post-Soviet migration and ethnic diversity not only enhances the understanding of the changes in demographics during the transition period but also has meaningful implications on the current discourse regarding the globalisation backlash. As I mentioned above, however, they had not been paid systemic attention yet despite its relevance. The biggest challenge is the absence of acceptable statistics or estimates of the size of migration at an ethnic level during the post-Soviet transition period. Granted, there have been some attempts to look into the migration of Soviet citizens during the transition period, which I will briefly summarise later in this introductory chapter. Many of them provide the migration trend, sometimes down to regional level statistics, using government publications or collecting partial and anecdotal evidence, but there are at least three important aspects that have been neglected in the previous works.

Firstly, there has been no consistent dataset constructed that spans both pre- and post-collapse periods. The available data is concentrated on the post-Soviet period, and existing late-Soviet studies have not extended their datasets to the post-Soviet period. As a result, it was hard to directly compare the different characteristics between pre- and post-collapse migration patterns and their determinants, which might shed light on how institutional changes shape migration movements. Secondly, the Soviet and post-Soviet migration literature tends to focus on Russia[22]. There has been less concern about non-Russian Republics or FSU states, especially when it comes to regional level study. Inter-republic migration, however, accounts for over 95% during the Soviet period and around 80% even after the independence of the republics[23].

[21] Williamson, J., 'Globalization, labor markets and policy backlash in the past', *Journal of Economic Perspectives* vol. 12 no. 4 (1998), p.63

[22] More prominent publications tend to deal with Russia only. See Previous Literature section for details.

[23] Rosstat, *Demograficheskiy yezhegodnik Rossii: Statisticheskiy sbornik (Demographic Yearbook of Russia: Statistical Handbook)*, Table 7.1, (Moscow, 2002), pp.314-5

Therefore it is crucial to look at the migration of non-Russian states to have an accurate understanding of the whole picture. Lastly but perhaps most importantly, little attention has been paid to ethnic aspects of the migration movements. As mentioned above, many different ethnic groups had their residence in the USSR and each of these ethnic groups has shown distinctive migration patterns during the period of study. Therefore, it is also essential to see how the migration patterns are affected by ethnicity, and this thesis will be contributing particularly to this point.

The interesting migration phenomenon in the Soviet transition period, combined with the room for improvement in the previous literature, leads me to the questions about its causes and consequences. To answer these questions, I first construct a new dataset of the net migration of different ethnic groups in the Soviet regions[24], then conduct a series of quantitative analyses as to the determinants of net migration and the effect of migration on ethnic diversity and violence in the regions. The results from the main analyses will be summarised at the end of this introductory chapter, after discussing the history of nationality and migration policies of the Soviet Union in more detail and reviewing the previous literature which quantitatively looks into the post-Soviet migration.

[24] The regional level data provide net migration in the administrative divisions of *oblasts*/*krays*/ASSRs. For details, see Section III, Chapter 2.

Historical Context

Soviet Period

According to the 1989 USSR Census, the number of ethnic groups settling in the USSR was 128, among which 55 had populations of more than 100,000 and 22 had more than 1 million. The ethnic fractionalisation index of the USSR in 1989 was 0.711[25], which is far higher than the US (0.491) and the world average (0.480)[26]. Presence of many ethnic groups and high ethnic diversity seem somewhat inconsistent with the characteristics of a socialist country which had pursued the supranational unitary Soviet state[27]. This is due to the Soviet authorities' contradictory nationality policies as discussed in the very beginning of this chapter, which will be elaborated in the following paragraphs.

Right after the Bolshevik Revolution, there was political contestation between nationalists and internationalists over the right of nations to self-determination, while the support of the Congress leaned towards Lenin, one of the nation-builders[28]. Leninists believed that allowing for self-determination and cultural/linguistic freedom was an essential step to overcome the oppression under the old tsarist regime and move toward a true egalitarian socialist state[29]. In 1917, Lenin renounced the use of any form of force to keep the empire as a whole and was committed to supporting for the right of separation from Russia of all nations and nationalities who had been suppressed by tsarism[30]. This was also viewed as a compromise between Marxist ideal and the reality of weak state facing the nationalist and separatist movements. For example, Bolshevik leaders felt threatened by the big victory of Ukrainian

[25] This figure goes down when regional concentration is considered. See Section II, Chapter 4, for details.
[26] Fearon, J., 'Ethnic and cultural diversity by country', *Journal of economic growth* vol. 8 no. 2 (2003), pp. 212, 215
[27] Huttenbach, 'A Unitary Soviet State', p.4; There was no ethnic group classified as *Soviets,* unlike other socialist states. For example, Yugoslavian census includes "Yugoslav" as an ethnic group besides Croatian, Serbian and Slovenian. Wachtel, A., *Making a nation, breaking a nation: Literature and cultural politics in Yugoslavia*, (Stanford, 1998), pp.10-14
[28] Martin, T., *The affirmative action empire: nations and nationalism in the Soviet Union, 1923-1939*. (New York, 2001), pp.2-3; Slezkine, 'Ethnic Particularism', pp.421
[29] Suny, R., *The revenge of the past: Nationalism, revolution, and the collapse of the Soviet Union* (Stanford, 1993), P.86
[30] Ibid., pp. 87-88

Socialist Revolutionaries over the Russian party in 1919 Constituent Assembly election of Ukraine[31]. Though Lenin had still hoped to reach the eventual merging of nations under Socialist ideology and preserve unitary Soviet state, the concessions to national principle eventually led to the consolidation of ethnicity, not its disappearance. Unlike the US, Ronald Suny argued, the Soviet Union was not a melting pot but an incubator of new nations[32].

In the course of promoting self-determination of all nationalities, the policy of nativisation (*Korenizatisiya* in Russian) was adopted, which had four aspects, namely national territories, national language, national elites and national cultures[33]. The most conspicuous result derived from nativisation was the territorial delimitation based on ethnicity. As shown in Figure 1-1, 15 of over 100 different ethnic groups had their own union republics (e.g. Russian SFSR, Armenian SSR, Kazakh SSR, etc.) and 20 had their autonomous republics (Tatars ASSR, Yakut ASSR, etc.). There were also lower division autonomous territories such as *autonomous oblasts* and *autonomous okrugs*. The union republics even had the right to secede which is backed by the Article 17 in the 1936 Constitution or Article 72 of the 1977 Constitution, though this right was just perfunctory as there was no detailed procedure of secession.

The titular groups were given a high degree of autonomy in their territory in terms of language education, appointment of high public officials, and preservation of national culture. For example, Latvian and Ukrainian governments adopted the law promoting equality of languages in courts and administration, and Belorussia used four different languages in its signs, local governments and schools[34]. The share of natives in political party membership was very high, even when their share in the population is low. For example, when Georgians accounted for 25% of the population of Tiflis, the capital of Georgia, 43% of the city soviet, 75% of the city executive committee, 91% of the praesidium of the executive committee were Georgians[35]. Also,

[31]Ibid., pp. 90
[32] ibid., p. 87
[33] Martin, *Affirmative action*, p.10
[34] Suny, *Revenge of the past*, p.102
[35] Slezkine, 'Ethnic particularism', p.426

native operas, film studios, academies of science, etc. were also preserved and fostered by those national elites[36]. Regarding this, Tishkov argued as follows:

> *…it is precisely the Bolsheviks who constructed, institutionalized and sponsored ethnic nations in the country. It is also because of them that all major non-Russian ethnic groups used to have and possess today a growing level of ethno-territorial autonomy with their own constitutions, state symbols, languages, legitimate governments and strong representation in federal power structures[37].*

However, it would be incorrect to say that the Soviet leaders wanted to preserve all the national identities to the point that the "Soviet" identity is entirely abandoned. After all, the nativisation was only regarded as the key stage on the way to the ultimate Marxist and internationalist utopia. The 'oppressed nations', who were given the right to autonomy, were also bound to struggle for the international integration of all workers[38]. A central theme in the early-Soviet nationality question was dialectic: *thesis* - flowering of nation (*rastsvet*), *antithesis* - drawing together (*sblizheniye*), *synthesis* - ultimate merger (*sliyanie*) into one Soviet people[39]. In order to achieve the final goal of Sovietisation, the authorities have adopted nationality policies at various stages, namely ethnocide/expulsion, assimilation, and resettlement[40].

The actions of ethnocide and expulsion[41] had been widely taken in the 1930s and 40s under the Stalinist regime. Victimised nationalities include Ukrainians, Kazakhs, Crimean Tatars, Kalmyks, Karachays, Circassians, Chinese, Koreans and Japanese[42]. This mass killing of ethnic minorities often occurred as a part of the forced removal of undesired nations under the

[36] Ibid., p.105
[37] Tishkov, V., 'Forget the nation: post-nationalist understanding of nationalism', *Ethnic and Racial Studies* vol. 23 no. 4 (2000), p.634
[38] Kaiser, *Geography of Nationalism,* p.147
[39] Ibid., p.147
[40] Allworth, Edward. "A Theory of Soviet Nationality Policies." In Huttenbach, *Soviet Nationality Policies* (London, 1990), pp.36-7.
[41] Expulsion, or deportation, originally means forced emigration or obligatory repatriation. However, in the Soviet period, it often describes forced migration from one's settlement to other part of the Soviet Union, e.g. to Central Asia or Siberia. Therefore, the definitions of expulsion and resettlement overlap to some extent.
[42] Ibid., p.35

programme called 'Operation Deportation'[43]. Taking the example of Crimean Tatars, over 190,000 were targeted to be deported from the Crimean ASSR to Central Asia and Siberia in 1944. NKVD (the progenitor of the KGB) troops came to operate the deportation and summarily shot, on the spot, thousands Crimean Tatars, who were deemed guilty of collaboration with the Germans when the Nazis occupied Crimea during the Second World War[44]. 7,900 Crimean Tatars, around 4% of their population, were killed during this deportation process[45]. The similar tragedy had hit other distrusted nations in the closing days of the Second World War.

A less extreme, yet still destructive, form of nationality policy was assimilation. The first aspect of assimilation is linguistic Russification. Despite native languages being promoted under the slogan of nativisation, instruction in Russian was also compulsory, and essential as a means of upward mobility[46]. In March 1938, Central Committee of the Communist party passed a resolution, "On the obligatory study of Russian language in the schools of the national republics and oblasts", which required secondary students to be fluent in Russian grammar and syntax[47]. Linguistic integration was promoted effectively, as it is observed in the Soviet censuses that the number of people who claim that their first language is Russian kept rising in non-Russian union republics and ASSRs[48].

In addition to linguistic Russification, patriotic and internationalist education (*patrioticheskoe i internatsional'noe vospitanie*) was presented to build a supranational Soviet identity[49]. Mandatory patriotic education was provided to young citizens in a variety of forms, such as in-school learning, union-wide excursion to historic places, interethnic sports competitions, or ceremonial rituals, through various institutional structures, including the

[43] Williams, B., 'Hidden ethnocide in the Soviet Muslim borderlands: the ethnic cleansing of the Crimean Tatars', *Journal of Genocide Research* vol. 4 no. 3 (2002) p. 358
[44] Ibid., p.370
[45] Ibid., p.360
[46] Kaiser, *Geography of Nationalism*, p.139
[47] Ibid., p.139
[48] Ibid., 266-7
[49] Collias, 'Making Soviet Citizens', p.74

Soviet Armed Forces, Communist Youth League (*Komsomol*), or Soviet schools[50]. This education includes the regular participation in the rites and rituals commemorating heroes who fought in the Second World War. These heroes are not necessarily Russian, and multi-ethnic heroes often symbolise the interethnic cooperation in the course of reaching the framework of the Soviet socialist ideal[51]. These rituals are thought to serve the integration policy of the state and to overcome interethnic conflicts[52].

Finally, the Soviet authorities implemented population redistribution policies, which are classified as resettlement earlier, to achieve the ultimate merger of its various ethnic groups. Expulsion, not accompanying genocide, has an aspect of resettlement to mix nationalities who were accused of threatening Soviet power. Internal deportation counts up to 5.9 million between 1919 and 1953[53]. This includes around 1.8 million rich kulaks but also targeted ten ethnic groups such as Koreans, Volga Germans, Chechens, and Meskhetian Turks[54].

Internal migration, even after the Stalin's death, remained as a tool to ration people to the places following the authority's policy objectives[55]. The Soviet leaders had attempted to transplant its population in less favourable regions under slogans of ethnic mixture and balanced regional development[56]. Throughout the Soviet era since 1932, the regime required citizens to register at the local branch of Ministry of Interior's Registration Office and have the proof of permanent residence on their passport (*propiska* in Russian)[57]. The authorities limited the number of residence permits each area or city, and distributed university graduates to other regions and industries. The workers could choose to stay there or leave after some fixed-term

[50] Ibid., p.75
[51] Ibid., p.80
[52] Sadomskaya, N., 'New Soviet Rituals and National Integration', In Huttenbach, *Soviet Nationalities Policies* (London, 1990), p.97
[53] Polian, P., *Against Their Wil : The History and Geography of Forced Migrations in the USSR* (Budapest, 2004), p.312-3
[54] Light, M., 'What Does It Mean to Control Migration? Soviet Mobility Policies in Comparative Perspective', *Law & Social Inquiry* vol. 37 no. 2 (2012), p.407
[55] Buckley, C., 'The Myth of Managed Migration: Migration Control and Market in the Soviet Period', *Slavic Review* vol.54 no. 4 (1995), pp.896-916
[56] Dmitrieva, O., *Regional development: The USSR and after* (London, 1996), p.22
[57] Messina, C., 'From Migrants to Refugees: Russian, Soviet and Post-Soviet Migration.' *International Journal of Refugee Law* vol. 6 no.4 (1994), pp. 623-624

contract. The evidence suggests that Soviet leaders perceived the role of economic factors in incentivising labour movement and attempted to redistribute its population into less developed regions using wages and other forms of monetary and non-monetary compensation[58].

There were special northern and eastern benefits such as higher pension and longer vacations. Oil refining and natural gas processing industries in Western Siberia, for example, attracted people from the European part of the USSR[59]. Large railway projects, development of iron ore and coal mines, construction of ports in the Far East also attracted migrants. Those who are from ethnic peripheries in Transcaucasia and Central Asia were most responsive to the economic benefits of moving to Siberia and the Far East. As the goal of Soviet leadership in implementing nationality policy includes "ethnic equalisation", which aims to reduce the gap in living standards among different ethnic groups[60], it was natural that the less affluent members of titular groups in Southern republics and non-titular ethnic minorities were encouraged to migrate to the regions described above. This resulted in ethnic unmixing in the 1970s and 80s, when the new industries in Siberian and Far Eastern regions were being established.

To sum up, the contradictory nationality and migration policies of the Soviet Union, aiming both the preservation of nationalities and promotion of unitary state, result in a large number of people who kept their national identity being dispersed from their perceived national homeland. The status of these people changed dramatically when the Soviet Union collapsed.

Post-Soviet Transition Period

The dissolution of the USSR created 15 newly independent states at the end of 1991. While the break-up of this 74-year-old socialist empire was relatively peaceful[61], the late 80s

[58] Buckley, C. et al., *Migration, Homeland, and Belonging in Eurasia* (Chicago, 2008), p.7
[59] Gibson, 'Interregional migration', pp.147-8
[60] Jones and Grupp, 'Modernisation', p.159
[61] There was no major war between Russia and other FSU union republics, though some ethnic groups, e.g. Chechens, Tajiks, Ossetians, Abkhaz did experience civil wars.

and early 90s saw massive nationalist and secessionist demonstrations demanding the independence of their national republics[62]. Since these nationalist movements were essentially enabling national elites to gain political and economic power after the independence, the closed system of privileges favouring titular ethnic groups was created[63]. The exclusive rights of titular nations were given priority while the rights of individuals or other population groups were disregarded[64].

The extent to which each of FSU states strengthened the power of its own titular group differed. Korobkov (2003) classified the non-Russian FSU states into three groups, according to their attitudes toward nationalist elites and non-titular ethnic groups[65]. The first group is Russia, Ukraine and Belarus, which provided full citizenship to all the persons who had resided within their borders for a certain period and did not distinguish their residents by ethnicity in formal policies. Second group is Lithuania, Moldova, Kazakhstan and Kyrgyzstan, where ethnic orientation was emphasised, and titular national groups were favoured. Although citizenship rights were also given to all permanent residents in these states, some policies favouring the titular groups were adopted. For example, Kazakhstan passed a law requiring all who pursed government employment to be proficient in Kazakh, and Lithuania treated "traditional Lithuanian churches and religious organisations" specially[66]. Third group is Estonia, Lativia and other states in Transcaucasia and Central Asia, which implemented discriminatory policy toward minorities explicitly. Non-titular groups were not granted citizenship rights automatically, and restrictions were imposed on political and economic activities of non-titular groups. For example, in Estonia, the constitution claims that certain "categories property in Estonia… are reserved for ownership by Estonian citizens", when only 80.1 percent of the whole

[62] Beissinger, M., *Nationalist Mobilization and the Collapse of the Soviet State*, (Cambridge, 2002)
[63] Korobkov, A., and Zaionchkovskaia. Z., 'The Changes in the Migration Patterns in the Post-Soviet States: The First Decade', *Communist and Post-Communist Studies* vol. 37 no. 4 (2004), p.490
[64] Ibid., p.492
[65] Korobkov, 'State and nation building policies', p.23
[66] Ibid. p.23

population of Estonia held citizenship[67].

The changing status of non-indigenous groups, who spread across the independent FSU states, brought about changes in migration patterns as well. The post-Soviet migration of the members of FSU ethnic groups is usually divided into two broad categories in the literature: first, the (return) migration of the titular nationalities to their national territories, including return of ethnic Russians to Russia, and second, the emigration of ethnic minorities who had their national states outside the USSR/FSU, notably Jews and Germans.

Most notable is the return migration of ethnic Russians to Russian Federation amongst the post-Soviet inter-republic movements. The number of ethnic Russians in non-Russian states reached 25.3 million in 1989 census[68]. The extent of the return migration of ethnic Russians who had suddenly become diaspora was large, even though it was not as extensive as some contemporary commentators had anticipated[69]. According to Timothy Heleniak, Russia added 3.3 million to its population through migration from other Soviet successor states in the decade after 1989, with 2.9 million (88.4%) among them being ethnic Russians[70]. Furthermore, it is shown that net migration of ethnic Russians in the non-Russian FSU states was negative, i.e. out-migration exceeds in-migration, without a single exception[71].

Ethnic Russians were not the only titular nationality that migrated to its national republic. All countries except Estonia and Georgia showed the positive net migration of their titular nationalities. Return migration was most active in the Slavic states, e.g. Ukraine and Belarus, and some Central Asian countries, e.g. Kazakhstan and Uzbekistan, until 1999[72].

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[67] Less than 40% of non-Estonians had citizenship while almost all Estonians are citizens. Ibid., 'State and nation building policies', p.24

[68] Korobkov and Zaionchkovskaia, 'Changes in the migration patterns', p.490

[69] For example, US Congress during its special hearing in 1996 estimated that the number of potential return migrants was 25 million, and Russian governmental source gave similar forecast; 20-24 million. Ibid., p.482

[70] Heleniak, T., 'The end of an empire: Migration and the changing nationality composition of the Soviet successor states', in Munz, R. and Ohliger, R. (ed.), *Diasporas and ethnic migrants. Germany, Israel and Post-Soviet successor states in comparative perspective* (Portland, 2003), p.138

[71] Ibid., pp. 138-9

[72] Ibid., p.141

The emigration of Soviet ethnic minorities out of the FSU states consists of an important stream of late- and post-Soviet migration patterns. It began a little before the dissolution of the USSR, with the partly liberalised emigration policy under the auspice of Gorbachev administration. The main recipients of these Soviet emigrants were the countries where their ancestors come from, namely Israel and Germany, which often provided them with citizenship rights. The US had also been the main receiving country before it imposed immigration quotas against the Soviet Union in 1990[73]. In total, there was a potential emigrant pool of over 6 million, as big as the size of ethnic minorities who had external homelands, as shown in Table 1-2.

The emigration of these ethnic groups was greatly influenced by the policy of the authority in the Soviet era. Exit visas were granted to the applicants only when the Soviet leadership's interest in demonstrating its respect for human rights and international laws was strong, as was in the 1970s[74]. For example, the number of annual visas granted to Jews averaged 24,669 in the 70s, before dropping to 3,507 in 1981-87[75]. After emigration was liberalised, the efforts of destination governments to attract or deter an influx of immigrants played a significant role in shaping migration trends.

[73] Tolts, M., 'Post-Soviet Aliyah and Jewish Demographic Transformation'. *the 15th World Congress of Jewish Studies* (2009), p.4

[74] Siegel, D., *The great immigration: Russian Jews in Israel*. (Providence, 1998), p.4

[75] Dominitz, Y., 'Israel's Immigration Policy and the Dropout Phenomenon', in Lewin-Epstein, N., et al. (ed.), *Russian Jews on Three Continents: Migration and Resettlement* (1997), p.119

Table 1-2. The population of ethnic minorities with external homelands, 1989

Nationality	Population	Main residence
Germans	2,038,603	Kazakh SSR (47.0), RSFSR (41.3)
Jews	1,378,344	RSFSR (38.9), Ukrainian SSR (35.2)
Poles	1,126,334	Byelorussian SSR (37.1), Lithuanian SSR (22.9), Ukrainian SSR (19.5)
Koreans	438,650	Uzbek SSR (41.8), RSFRS (24.4), Kazakh SSR (23.6)
Bulgarians	372,941	Ukrainian SSR(62.7), Moldavian SSR(23.7)
Greeks	358,068	Georgian SSR (28.0), Ukrainian SSR(27.5), RSFSR (25.6)
Turks	207,512	Uzbek SSR (51.2), Kazakh SSR (23.9)
Hungarians	171,420	Ukrainian SSR (95.2)
Romanians	146,071	Ukrainian SSR (92.3)
Finns	67,359	RSFSR (69.9), Estonian SSR (24.7)
Total	6,305,302	-

Note: In parenthesis is the distribution of the ethnic group in Soviet republics. (i.e. $\frac{Population\ in\ a\ republic}{Total\ population\ in\ USSR}$).
Source: 1989 Soviet Census

In sum, the members of ethnic groups who were residing outside of their national republics tended to go back to their internal or external home states after the dissolution. The focus of this thesis will be on the determinants of this "return" migration, examining whether ethnic factors were crucial in migration decision and destination choice in the transition period.

Previous literature

In this section, I will review the previous literature to which this thesis contributes. There are three different streams of such literature, seeking to find 1) overall trend of post-Soviet migration, 2) determinants of migration, and 3) the relationship between ethnic diversity and conflict.

Overall Trend of Post-Soviet Migration

Many scholars have attempted to analyse the overall trend of post-Soviet migration patterns. Research in the early 1990s provided preliminary data on the size of ethnic migrations and their causes, as well as expectations of future trends.

The main source of data on ethnic composition of the Soviet population is all-nation census which was conducted roughly once a decade since the foundation of the USSR. Due to the presence of the all-nation census in 1979 and 1989, the years around the intercensal period became the focal point of the demography and migration literature. Anderson and Silver (1989) give an overview of the change in ethnic composition and the effect of migration on that phenomenon[76]. They calculated net migration as the difference between total population growth and natural increase[77] and pointed out that the inter-republic migration had a large influence on the change in ethnic composition[78]. One of the major drivers of the internal relocation of the Soviet population was the returning migrants fleeing from ethnic conflicts[79].

Brubaker (1992) is another author who has focused on inter-republic movements, with an interest in the relationship between titular and non-titular nationalities[80]. After overviewing the out-migration patterns in the transition period, he pays particular attention to the

[76] Anderson, B., and B. Silver, 'Demographic sources of the changing ethnic composition of the Soviet Union', *Population and Development Review* vol. 15 no. 4 (1989), pp. 609-656

[77] They made various assumptions to estimate vital statistics of ethnic groups, since there is little information on them. Ibid., pp.636-637

[78] Ibid., p.614

[79] For example, Nagorno-Karabakh war (1988-94) triggered the migration of Armenians to Armenia and Azerbaijanis to Azerbaijan.

[80] Brubaker, R., 'Citizenship struggles in Soviet successor states', *International Migration Review* vol. 26 no. 2 (1992), pp.269-291

citizenship issue among immigrants from one FSU state to another. Taking Russian immigrants in Baltic countries as an example, he concludes that the citizenship would not be granted automatically to the FSU migrants[81]. His conclusion regarding Russian diaspora in non-Russian states and their citizenship struggles would turn out to be one facet of "ethnic unmixing" in his later work in 1998. Contrary to the common belief that migration is often connected to "heterogenization" of society, the case in post-Soviet migrations was an example of movement towards ethnic affinity, involving many ethnic migrants going back to their internal or external home states[82]. The politics around the citizenship grants formed a push factor of Russian emigration from other successor countries.

Robertson (1996) reviews qualitative evidence but also provides specific figures proving the hypothesis of ethnic migration to the home states in the early 1990s[83]. All 14 non-Russian titular nationalities are recorded to have positive net migration from Russia to their respective newly independent home states in 1991, and ethnic Russians who had lived there left for Russia[84]. In 1992, the same trend continued in most FSU states except the war-torn regions of Transcaucasia (Georgia, Armenia and Azerbaijan) and Estonia[85]. He reached the similar conclusion to previous works, that the preferential policies toward the majority, i.e. titular nationalities, not only drove out minorities but also attracted co-ethnics from other states[86].

Some of these earlier works have a specific concern about the Post-soviet emigration of peoples to foreign countries other than ex-republics. Heitman (1991)[87] and Shevtsova (1992)[88] are among the most frequently cited articles providing emigration statistics in the transition period and, more interestingly, predictions of the future trend. Germans, Jews and Armenians

[81] Ibid., p.286
[82] Brubaker, 'Migrations of ethnic unmixing (1998)', p.1047
[83] Robertson, L., 'The ethnic composition of migration in the former Soviet Union'. Post-Soviet Geography and Economy vol. 37 no. 2 (1996), pp.113-128
[84] Ibid., p.119
[85] Ibid., p.119
[86] Ibid., p.126
[87] Heitman, S., 'Soviet emigration in 1990: A new "fourth wave"?' *Innovation: The European Journal of Social Science Research*, vol. 4 no. 3-4 (1991), pp.373-389
[88] Shevtsova, L., 'Post Soviet emigration today and tomorrow', *International Migration Review* vol. 26 no. 2 (1992), pp.241-257

were the three most active nationalities moving out of the FSU to the West, whose number of emigrants drastically increased after 1987 when the government began to expand the number of exit visa grants. Heitman further points out that potential ethnic migrants among Poles, Bulgarians, Koreans and Turks, who would in the future consist of a fourth wave of emigration[89]. Shevtosova, who was more careful in reviewing evidence both for and against the prediction of massive emigration, seems to agree with the possible increase in the number of emigrants for several years[90]. She, however, also predicted the decline of the trend in the near future quoting Russians' willingness to return to the country once the political situation had stabilised[91].

The actual scope of emigration was much smaller than many contemporaries expected. While Shevtsova predicted 1 - 1.5 million annual emigrants from Russian Federation in the mid-1990s, which she thought very conservative by herself, the actual annual outflows to foreign countries was always below 500,000 after 1993, even including the number of emigrants to FSU states – outflows to other foreign countries were only 100,000 on average during the entire 1990s[92]. Amongst the many possible deterrents to the occurrence of the mass migration out of the FSU states, limits on visa for the former Soviet citizens in receiving countries (US or Germany) and less rosy prospects of host economies (e.g. Israel) might have been most significant[93].

Recent studies look at the phenomenon with a more complete set of statistics. The most intensive and detailed research was done by Timothy Heleniak (1997a, b, 2003, 2008, 2012). His studies are noteworthy in that they tried to estimate the magnitude of ethnic movements, though these were limited to the country level. There is also a group of research which attempts to review the overall trend of post-Soviet migration, including Azrael and Payin (1996), Korobkov and Zaionchkovskaia (2004), Tishkov et al. (2005), Mansoor and Quillin (2006), and

[89] Ibid., p.387
[90] Shevtsoba, 'Post Soviet emigration', p. 241
[91] Ibid.,p.244
[92] Rosstat, Demographic Yearbooks (various years). It is noteworthy that the administrative figures can be subject to underestimation of actual flows of migrant. See Section II, Chapter 2 for detail.
[93] Heitman, 'New fourth wave', postscript

two edited books, Munz and Ohliger (2003) and Buckley and Rubles (2008)[94].

The above-mentioned authors used various sources to measure the migration flows in the transition period, but there are three major drawbacks. Firstly, the dataset constructed did not span both pre- and post-collapse periods. The data is mostly concentrated on the post-Soviet period, and late-Soviet studies did not extend their dataset to the post-Soviet period. As a result, it was hard to compare the different characteristics between pre- and post-collapse migration patterns and their determinants. Secondly, the Soviet and post-Soviet migration literature tends to focus on Russia. There has been less concern about non-Russian Republics or FSU states, especially when it comes to regional level study. Inter-republic migration accounts for over 95% during the Soviet period and around 80% even after the independence of the republics[95]. Therefore it is crucial to look at the migration of non-Russian states to have an accurate understanding of the whole picture. Lastly, little attention has been paid to ethnic aspects of the migration movements. As mentioned above, many different ethnic groups had their residence in the USSR and each of these ethnic groups has shown distinctive migration patterns during the period of concern. Therefore, it is also essential to see how ethnicity and migration are interrelated, and this thesis will be contributing particularly to this point.

The Determinants of Migration

The determinants of migration decisions and destination choice are an important subject in the migration literature. Economic differentials between sending and receiving regions are often seen as the most important factor driving people to move. Potential migrants will decide to move when the destinations can offer better economic opportunities, notably higher wages, higher chance of employment, and cheaper living costs etc., than where they currently live. The importance of economic factor in determining migration patterns does not seem to need further

[94] Their findings are summarised in the previous section.

[95] Rosstat, Demograficheskiy yezhegodnik Rossii: Statisticheskiy sbornik (Demographic Yearbook of Russia: Statistical Handbook), Table 7.1, (Moscow, 2002), pp.314-5

explanation. The expected lifetime income in the potential destination has been emphasised from the studies as early as Ravenstein (1885)[96] to the most recent migration literature, as surveyed in Constant and Zimmerman (2013)[97]. The effect of income differential on migration has been intensively tested for many regions and periods (UK: Hatton 1995, Hatton and Williamson 2005; US: Borjas 1987, Clark et al. 2007; OECD; Mayda 2010, Belot and Hatton 2012, Ortega and Peri 2013 and many others).

Apparently, however, money is not the only matter of concern for the migrants. Previous migrant stock also plays a significant role in determining migration decision. The migrant network not only provides information about the destination and reduces the opportunity cost of migration, but also contributes to the improvement of immigrant outcomes in the host country. In addition, some authors have started to pay attention to the impact of ethnic affinity on migrants' motivation and assimilation as a specific case of the network effects. In terms of explaining migration, it is argued that individuals have an incentive to live in the region or country where their co-ethnics are present, and governments can also benefit from ethnic homogeneity.

The view that identity is one of the main determinants of labour market performance and earnings has become increasingly popular among economists since the 2000s[98]. The seminal works of Akerlof and Kranton (2000, 2005) define identity as a person's sense of self, which is affected by gender, race, ethnicity, culture, religion, or any group/organisation one belongs to, etc.[99] They argue that a rational individual would seek to achieve their ideal self and may sacrifice monetary compensation for the sake of enhancing the sense of identity. The impact of ethnicity, which is an aspect of one's identity, should be better observed among

[96] Ravenstein, E., 'The laws of migration', *Journal of the Statistical Society of London* vol. 48 no. 2 (1885), pp.167-235.
[97] Constant, A., and Zimmermann, K., *International handbook on the economics of migration* (Cheltenham, 2013)
[98] Ibid., p.17
[99] Akerlof, G., and Kranton, R., 'Economics and identity', *Quarterly Journal of Economics* vol.115 no.3 (2000), pp.715-753; Akerlof, G., and Kranton, R., 'Identity and the Economics of Organizations', *Journal of Economic Perspectives* vo. 19 no.1 (2005), pp.9-32.

immigrants, as ethnic identity usually comes up to the surface when a person migrates to a society dominated by other ethnic groups. Therefore, migration decisions and destination choice can be dependent on ethnicity regardless of its impact on earnings.

Furthermore, earnings themselves can be affected by identity. Many scholars have concluded that the ethnicity of immigrants and labour market outcomes in the destination are closely related (Constant and Zimmermann 2008, 2013, Bisin et al. 2011, Hatton and Leigh 2011, Patacchini and Zenou 2012). For instance, Bisin et al. (2011), studying the impact of ethnic identity on labour market outcomes of non-EU migrants in Europe, argue that there is clear evidence of the disadvantage of being an ethnic minority in terms of wage assimilation[100]. Hatton and Leigh (2011) also emphasise the role of ethnic communities in improving the new co-ethnic immigrants' earnings[101]. Patacchini and Zenou (2012) find the evidence in the UK labour market that the residential proximity to the same ethnic group enhances the probability of successful job-seeking of an individual[102]. All these studies support the idea that the ethnic identity is one of the most important factors affecting migrants' economic performance and therefore will affect the decision making and destination selection process of potential migrants in the first place.

There is a handful of research which supports the direct role of ethnicity in the migration decision. Most of them have reached this conclusion analysing the internal migration of US ethnic minorities (Kritz and Nogle 1994, Gurak and Kritz 2000, Frey and Liaw 2005, etc.). Kritz and Nogle maintain that the larger the number of compatriots residing in a region, the less likely is out-migration to occur due to social capital in the immigrant community[103]. Similarly, Frey and Liaw (2005) suggest the reasons for ethnic sorting, such as kinship ties, social support

[100] Bisin, A et al., 'Ethnic identity and labour market outcomes of immigrants in Europe', *Economic Policy* vol. 26 no. 65 (2011), pp.57-92.
[101] Hatton, T., and Leigh, A., 'Immigrants assimilate as communities, not just as individuals', *Journal of Population Economics* vol. 24 no. 2 (2011), pp.389-419
[102] Patacchini, E., and Zenou, Y. 'Ethnic networks and employment outcomes', *Regional Science and Urban Economics* vol. 42 no. 6 (2012), pp.938-949.
[103] Kritz, M., and Nogle, J., 'Nativity concentration and internal migration among the foreign-born', *Demography* vol. 31 no. 3 (1994), pp.509-524.

network, and access to informal employment opportunities[104]. They also find that the internal migration of Hispanics, Asians, and African Americans is affected by the concentration of each ethnic group in a state, retaining potential out-migrants and attracting new migrants[105].

As to the post-Soviet context, the literature gives some qualitative evaluation on the motivations of interstate migration in the post-Soviet space. Korobkov and Zaionchkovskaia (2004) attribute ethnic relocation in the earlier period to political and ethnic factors, such as the attempts of FSU state leaders to form nation-states on the basis of ethnic definitions of nationality, policies favouring titular nationalities over ethnic minorities, the loss of status and privileges by the Russian-speaking elites and increasing cultural and linguistic differentiation among ethnic groups[106]. Pilkington (1998) also agrees that interethnic relationship and discrimination against Russian were the main reasons for migration of ethnic Russians from other FSU states, after interviewing 83 such migrants[107]. However, the migration since the late 1990s is argued to have become more and more affected by socioeconomic drivers, with the continuing role of Russia as a magnet for migration due to the increasing gap between Russian and other FSU economies[108]. Heleniak gave a similar explanation on the causes of post-Soviet migration, mainly attributing it to economic disparities among the FSU states and the role of government[109].

There also has been some quantitative research about the reasons of inter-regional migration in Russian Federation, namely Brown (1997), Andrienko and Guriev (2004), Gerber (2006), and Guriev and Vakulenko (2015). These, however, did not deal with the ethnic aspect except that some of them have ethnic fractionalisation as one of the control variables. Brown

[104] Frey, W., and Liaw, K., 'Migration within the United States: Role of Race-Ethnicity', *Brookings-Wharton papers on urban affairs* (2005), p.208

[105] While their main specification reports positive and significant coefficients of concentration of ethnicity variables, they also argue that its explanatory power may decrease depending on the immigrants' education and skill level, i.e. the more the immigrants are educated, the more they want to assimilate into the native society. Ibid., p.245

[106] Korobkov and Zaionchkovskaia, 'Changes in Migration', p.482

[107] Pilkington, H., *Migration, displacement, and identity in post-Soviet Russia* (London, 1998), p.128

[108] Korobkov and Zaionchkovskaia, 'Changes in Migration', p.488

[109] Heleniak, 'Overview (2008)', p.59

(1997) and other authors examining the earlier period of transition did not find the decisive effects of labour market conditions on migration movements between regions[110]. Andrienko and Guriev (2004) find the results expected by neo-classical migration theory, by using enhanced region-to-region flow data from 1992 to 1999 and direct measures of economic opportunity for the first time in the literature. Gerber (2006)[111] and Guriev and Vakulenko (2015)[112] drew a similar conclusion with different method and datasets, and the latter reveals interesting findings on the non-monotonic relationship between income and migration. That is, the higher income in sending country positively influences emigration flows only when they are poor, because of the existence of liquidity constraint. They include in their specification a structural break to find the non-monotonic relationship around an income threshold.

These articles do not deal with the ethnic aspect of post-Soviet migration and tend to focus on Russia only. The quantitative research which attempts to deal with the ethnic factor in the inter-FSU state migration is rare, and to my knowledge, there is just one paper as such: Locher (2002)[113]. She used Heleniak's dataset on net migration of ethnic groups between 1989 and 1999 to filter out their main determinants. She tried to examine the relative contributions of economic factors and ethnic sorting to 80 migration movements between 1989 and 99. Locher found the evidence of the significant influence of both ethnic sorting and economic factors on emigration and immigration of ethnic groups, resulting from Heckman full-information maximum likelihood estimation with explanatory variables of the size of ethnic groups, GDP per capita, EBRD transition indicators[114], institutional quality, and so on.

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[110] Brown, A., 'The economic determinants of internal migration flows in Russia during transition', *William Davidson Institute Working Papers Series,* no. 89 (1997)

[111] Gerber, T., 'Regional Economic Performance and Net Migration Rates in Russia, 1993–2002'. *International Migration Review* vol. 40 no. 3 (2006), pp.661-697

[112] Guriev, S., and Vakulenko, E., 'Breaking out of poverty traps: Internal migration and interregional convergence in Russia', *Journal of Comparative Economics* vol. 43, no. 3 (2015), pp. 633-649.

[113] Locher, L., 'Migration in the Soviet successor states', *Applied Economics Quarterly* vol. 48 no. 1 (2002), pp.67-84

[114] European Bank for Reconstruction and Development (EBRD) measures the degree of transition in post-communist countries by the weighted average of financial market reform, market liberalisation and

However, as the author herself recognised, the sample size was too small and the dataset was not complete. The fact that only data she had were those of net migration at the country level, unable to decompose it into in- and out-migration, weakened her interpretation. Locher justified her use of net migration data by arguing that the migration of an ethnic group is usually one direction and should not be different much from gross migration, but this is not necessarily true if one reviews the official statistics of ethnic migration available for the late 1990s[115]. This issue might have been addressed if she had used regional level data. Also, she did not include many control variables which may have influenced the migration patterns. There are readily available data of regional characteristics which migration literature has conventionally pointed out as key determinants, so having them in the specifications would have improved the quality of her research significantly. Though Locher's work was a sole quantitative analysis directly related to the topic I am concerned with, it left many points of improvement.

Ethnic diversity and development

There has been an extensive discussion in the literature as to the impact of ethnic diversity on economic and social outcomes. On the one hand, it is argued that the more fragmented society is prone to rent-seeking behaviour, competition over limited resources and resulting conflict, therefore subject to poor economic performance. On the other hand, however, the adverse effect of ethnic fractionalisation may not be very large if the society has good institutions, such as democracy, that can deal with the coordination problem and make the most of complementarities between different members. For example, Collier (2000) found that the ethnic diversity hampers economic growth only in non-democratic countries[116], and many other studies also recognise the different implications of ethnic and cultural heterogeneity depending

privatisation.

[115] For example, the net-migration of Belarusians or Kazakhs in Russia tends to fluctuate from 1997 to 2004 thus gross in- or out-migration had very different nature from net-value.

[116] Collier, P., 'Ethnicity, politics and economic performance', *Economics & Politics* vol. 12 no. 3 (2000), pp.225-245.

on the institutional settings of affected societies. In fact, there has been another stream of research that emphasises the positive effect of more diversity in an organisation or a society.

Ever since Easterly and Levine (1997)[117] attributed the poor economic performance of African countries to the low quality of their institutions which can be largely explained by ethnic fragmentation in the continent, the role of ethnicity has been regarded as one of the most important determinants of economic development. Alesina and La Ferrara (2005)[118] provide a survey of the literature dealing with the relationship between ethnic diversity and economic performance, concluding that ethnically heterogeneous societies have been disadvantaged in terms of economic growth depending on the quality of institutions.

Poor policy management and political instability can be two channels through which ethnic diversity exacerbates economic performance. The development literature has paid attention to the role of ethnic diversity in forming counterproductive institutions. The conflict of preferences due to the heterogeneity of a society often facilitates rent-seeking behaviour by different ethnic groups and diverts the resources from productive investment[119]. Also, the fragmented preferences will make it hard to reach agreement about the provision of public goods such as education and infrastructure, which again lower the level of output[120]. A more obvious channel is social unrest and civil wars among the ethnic groups residing in a region or a country. An ethnically polarised society may be prone to ethnic violence, riots and even military conflicts, as it is more difficult to coordinate the distribution of scarce resources[121]. These can affect the welfare of people directly or indirectly involved in the military conflicts, and lead to the destruction of physical capital and future economic prospect. The fiscal burden on the government dealing with the conflicts should not be negligible.

[117] Easterly, W., and Levine, R., 'Africa's growth tragedy: policies and ethnic divisions', *Quarterly Journal of Economics* vol. 112 no. 4 (1997), pp.1203-1250

[118] Alesina, A., and La Ferrara, E., 'Ethnic diversity and economic performance', *Journal of Economic Literature* vol.43 no. 3 (2005), pp.762-800

[119] Montalvo, J., and Reynal-Querol, M., 'Ethnic diversity and economic development', *Journal of Development Economics* vol. 76 no. 2, p.308

[120] Easterly and Levine, 'Africa's tragedy', p.1216

[121] Vanhanen, T., 'Domestic ethnic conflict and ethnic nepotism: A comparative analysis', *Journal of Peace Research* vol. 36 no. 1 (1999), p.58

There is also the view that diversity can be a good stimulus to the economy under certain circumstances. Lazear (2000)[122] and Collier (2000)[123] argued that the government, or better political institutions, can mitigate the adverse effect of ethnic diversity and benefit from complementarities and spillovers arising from different skills, experiences and ideas by coordinating communication. In line with this, Alesina and La Farrera (2005) also mentioned that the economic performance might not be hampered by ethnic fractionalisation in rich countries[124]. This claim has been supported by some recent empirical works such as Bellini et al. (2013)[125] and Alesina et al. (2016)[126]. Although the empirical evidence for the adverse effect of diversity still dominates the literature[127], it is not deniable that the government can work to increase the heterogeneity of the country at some stage of its economic development to gain from it. If done correctly, positive outcomes can be derived from the diverse societal members, namely the diffusion of new ideas, complementarities between different skill levels and mutual learning[128]. Putnam (2007) also argues that the influx of new members fosters the interethnic tolerance and social solidarity in the long run and thus makes conflicts less likely to occur[129].

To the best of my knowledge, there is no research exclusively focusing on the relationship between ethnic diversity and development of the Soviet Union or its successor countries. Given the ethnically fragmented nature of the Soviet republics, it should not be neglected in the literature. It is particularly relevant to look at the effect of diversity on ethnic conflicts and riots occurred in the late-Soviet period.

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[122] Lazear, E., 'Diversity and immigration' in Borjas, G. (ed.), *Issues in the Economics of Immigration* (Chicago, 2000), pp. 117-142

[123] Collier, 'Ethnicity', pp.225-245.

[124] Alesina and La Farrera, 'Ethnic diversity', p.770

[125] Bellini, E. et al., 'Cultural diversity and economic performance: evidence from European regions' in Crescenzi, R., and Percoco, M. (ed.), *Geography, Institutions and Regional Economic Performance* (Berlin 2013), pp. 121-141

[126] Alesina, A., Harnoss, J., and Rapoport, H., 'Birthplace diversity and economic prosperity', *Journal of Economic Growth* vol. 21 no. 2 (2016), pp.101-138

[127] Ibid., p.102

[128] Bove, Vi., and Elia, L., 'Migration, diversity, and economic growth', *World Development* vol. 89 (2017), pp.228-9

[129] Putnam, R., 'E pluribus unum: Diversity and community in the twenty-first century', *Scandinavian Political Studies* vol. 30 no. 2 (2007), p.141

Summary of the main findings

Chapter 2. Migrations of Ethnic Mixing and Unmixing

Improving upon the previous literature, my thesis first reviews the existing method and sources for measuring/estimating the migration flows during the transition period and constructs a database of regional migration by ethnicity. Data construction in this chapter is one of the core contributions of my thesis as it has never been done systematically in previous research.

I use the last two censuses of the USSR (1979 and 89) and the censuses conducted in the FSU states in the years around 2000 to track the ethnic composition changes at regional (*oblast*) levels. By taking away estimated ethnic level natural increase from population change, I could derive regional net migration levels and rates of major ethnic groups. The data constructed in the first chapter confirm the conclusion drawn from some incomplete or anecdotal evidence discussed in the previous works and provide new evidence of ethnic movements. To be specific, the literature argues that ethnic Russians out-migrated from non-Russian FSU states during the transition period and this proved to be the case by the net migration data of ethnic Russians constructed in this chapter. It is also confirmed that some ethnic minorities, notably Jews, began to leave the USSR even before the dissolution. In addition, there were some original findings in this chapter, which show that the non-Russian titular ethnic groups, for example, Ukrainians, Kazakhs, and many others, also have shown strong tendency to return to their own titular states. This chapter suggests specific figures of the level and rates of net migration at the regional and ethnic level, and some of the ethnic groups show net migration rates which are far higher than those shown in Europe during the "age of mass migration".

In the tables and maps providing descriptive statistics of ethnic migration, it is clearly observed that the trends shifted from ethnic mixing in the late-Soviet period to ethnic unmixing in the post-Soviet period. For example, Kazakhs or Ukrainians in Russian SFSR started to move to Kazakhstan or Ukraine, respectively, after independence. Return migration occurred despite the relatively weak Kazak or Ukrainian economic performance compared to the Russian

Federation. Similar patterns are observed from the migration of other titular nationalities in the given period. This means that migrants are likely to have considered the share of their own ethnic groups in the destinations when deciding to move, especially after dissolution.

These findings shed light on the motivation of the potential migrants in the transition period. Besides economic differentials, migrants tend to consider the presence of their co-ethnics in the sources and destinations inferring from the dataset constructed in this section. This idea needs to be tested to be accepted as a general conclusion, and this task will continue in the next chapter, analysing the determinants of regional net migration of ethnic groups quantitatively. Beyond this, the newly constructed dataset is also expected to be used for various quantitative analyses in the future.

Chapter 3. Ethnicity as a determinant of migration

One of the main aims of my thesis is to find the drivers of the ethnic migration during the transition period. The third chapter analyses aggregate data to figure out the universal determinants of migration movements in the late- and post-Soviet periods. As discussed in the literature review and the summary of the second chapter, economic motivations are not the only driver of the migration patterns in the Soviet and post-Soviet space. It has been attributed to other factors, namely, policies of sending and receiving countries, ethnic conflicts, and voluntary/involuntary ethnic sorting.

Using the newly constructed dataset in the previous chapter, I conduct OLS and Heckman 2-step estimations on the pre- and post-dissolution samples separately. I regress the regional net migration rates on the share of each ethnic group, wage growth, employment share, and conflict dummy being the main explanatory variables. I also include the control variables which are related to living standards in the sources and destinations, such as housing space, education, transport, crime rates, etc., in order to see if the migration patterns were affected by other factors. In addition to a simple OLS estimation, the Heckman 2-step selection model is

specified following the justification of Locher in correcting selection problem[130]. The estimation includes eight major ethnic groups, namely ethnic Russians, Ukrainians, Belarusians, Armenians, Kazakhs, Tatars, Jews and Germans. I do regressions first on the post-Soviet sample and then compare the results with the pre-collapse sample.

The role of ethnic share turns out to be positive and significant in the post-Soviet period, but this result is a complete reverse of what had happened during the late-Soviet period, where the coefficients of the ethnic share are negative. This result confirms that the trend of ethnic mixing which occurred in the Soviet period was reversed after its dissolution and the following abolition of migration restrictions. Economic variables notably wage growth, employment shares and food consumption, also affected migration patterns significantly in both periods, and the presence of civil wars have significant coefficients in some cases but not consistently.

I then check the robustness of the results by including other control variables like temperature range, average house size, the number of students, passenger distance by bus, share of the urban population, the number of medical personnel and crime rates. The significance and sign of ethnic share were not sensitive to the changes in the specifications. In addition, variables related to the living standards of residents had little influence on migration patterns during the Soviet period, possibly due to the lack of autonomy in choosing destinations. However, the post-Soviet specifications show that living conditions began to have a stronger impact on migration decision.

An additional exercise with the post-Soviet sample on the relationship between the duration of stay and migration show that the regions with high new immigrant shares have higher net migration rates. This result can be interpreted as evidence that the returnees to home republics were mostly those who recently had moved to other regions for some benefits but returned when those benefits disappeared.

[130] Locher, 'Migration', p.8

Chapter 4. Migration, Ethnic Fractionalization and Violence in the Soviet Union

The fourth chapter examines the extent to which the migration affected regional ethnic diversity and violent incidents. I use conventional ethnic fractionalisation (FRAC) and polarisation (POLAR) indices to measure how diverse the Soviet *oblasts* were, showing that there was a trend of increasing ethnic diversity in most parts of the USSR. Then I move on to investigate how the increasing ethnic diversity connects to the frequency and size of violent incidents which occurred at the end of the Soviet period.

In the first section of this chapter, I review the trend of regional ethnic diversity in the USSR from 1959 to 1989, and 2000. The analysis of the regional diversity gives somewhat different pictures from the country level data, due to the regional concentration of each ethnic group in their autonomous republics. The channel through which the regional ethnic diversity was shaped is revealed to be migration that promoted ethnic mixing during the late-Soviet period. The counterfactual ethnic diversity level was made available thanks to the data constructed in the previous chapters. As a result, the contribution of migration in all the Soviet *raions,* except Transcaucasia and Moldavia, was positive and raised the regional ethnic diversity levels during the last decade of the Soviet period. In contrast, ethnic unmixing was clearly seen during the post-Soviet period. The change in FRAC due to migration was negative in all regions with no exception in the period between 1989 and 2000, meaning that ethnic migration after the collapse contributed to the homogenisation of post-Soviet states.

The next section of this chapter attempts to document the relationship between the diversity and violence in the Soviet context, adding confirmation to the literature arguing for the negative effect of ethnic diversity on social outcomes. To be specific, the coefficients of ethnic diversity levels are positive and significant in explaining the frequency and the size of the violent incidents as well as raising the probability of civil wars. However, the change in ethnic diversity may have different implications, as the increase in FRAC, unlike its initial level, turns out to reduce the probability of ethnic violence. This can be partly explained by the 'contact

hypothesis', which argues that interethnic interactions prevent conflict, but is also related to the ethnic mobilisation in the regions where ethnic Russians left.

In addition, non-linear relationship between diversity and conflict is found from quadratic specifications. Contrary to the prediction of the previous literature, however, the chance of conflict is highest when the regions are very homogenous and very fragmented, resulting in a U-shape relationship. This can be understood in the Soviet context. On the one hand, ethnic elites can most easily mobilise indigenous people and organise nationalist protests in the highly homogeneous regions[131]. On the other hand, major ethnic conflicts often occurred between two non-Russian nationalities who occupied one region, which would have very high FRAC with the presence of ethnic Russians[132]. Detailed examples will be presented in Section III of this chapter.

[131] Beissinger, *Nationalist Mobilization*, pp.76-9

[132] FRAC will be high when there are three or more ethnic groups who have comparable population sizes.

Chapter 2. Migrations of Ethnic Mixing and Unmixing – Evidence from a New Database

Abstract

The main aim of this chapter is to construct a new database documenting the migration patterns of major ethnic groups. After critically evaluating the existing method and sources of estimating Soviet and post-Soviet migration, I construct late- and post-Soviet net migration data by region and ethnicity for the first time in the literature. The dataset shows that the major ethnic groups had been distributed outside their own national territories, resulting in ethnic mixing in the late-Soviet period. This trend is dramatically reversed after the dissolution of the Soviet Union, showing that the titular ethnic groups had a strong tendency to return to their own titular states. These findings provide a more accurate picture of the migration trend in the late- and post-Soviet periods and are expected to be used for various quantitative analyses in the future.

I. Introduction

The dissolution of the Soviet Union brought dramatic changes to the migration patterns of its diverse ethnic groups. While the restrictions on migration were lifted, the members of non-titular nationalities suddenly became diaspora in the lands where they had had no trouble living. It is not unreasonable to infer that many of these ethnic groups were exposed to new discrimination and would choose to migrate to more favourable places for them. The changes in the migration patterns of different ethnic groups after the dissolution can be the source of interesting academic discussions, but the biggest challenge is that we do not have acceptable migration statistics during the post-Soviet transition period, especially when it involves ethnicity.

The Soviet regime was notorious for manipulating and concealing its national statistics, and even after the collapse of the Soviet Union, the construction of a fine statistics management system was far down on the priority of newly established governments in the period of transition[133]. Although some Soviet official statistical sources, such as the *Demographic*

[133] Heleniak, 'Overview (2008)', p.36

Yearbook of USSR, reveal the size of migration movements among the union republics and regions, information about ethnic movements was scarce. It was not until after 1991 that Russia's Federal State Statistics Service (Rosstat) started to provide quite detailed statistics on the migration of its population by ethnicity[134], and none of the other FSU states has comparable data as Russia's. To analyse the relationship between ethnicity and migration, with which the key research questions of my thesis are concerned, it is crucial to have more comprehensive statistics about the movements of major ethnic groups in all the union republics/FSU states during the post-Soviet transition period, as well as the relevant statistics for its late-Soviet counterpart.

Only a small number of Soviet and Russian demographers tried to estimate the migration of ethnic groups before and after the dissolution. Some authors such as Schwartz (1991) and Kaiser (1994) are concerned about nationality redistribution during the Soviet period, but they could not carve out-migration from population changes due to the lack of data on natural increase[135]. Anderson and Silver (1989) tried to estimate the net migration of titular nationalities from 1959 to 1989, but they made somewhat unrealistic assumptions about natural increase by ethnicity[136]. As to the post-Soviet period, Heleniak's 1997 and 2003 works are the only systematic attempt to construct net migration data after the dissolution. However, these were republic level data, which may be subject to larger margins of errors than regional level data when applying assumptions about fertility and mortality rates[137].

Therefore, one of the main aims of this chapter will be to estimate the regional migration flows of the major ethnic groups in the Soviet and post-Soviet periods. With the newly constructed and improved dataset, it is made possible to see if the nationality and migration policies of the Soviet regime have affected the migration patterns before and after the collapse of the USSR. The

[134] The statistics are only at the federal, but not regional, level.
[135] Schwartz, 'USSR nationality', pp.209-248; Kaiser, *Geography of Nationalism*, pp. 170-90.
[136] They did not have natural increase data at ethnic level and assumed that the Soviet level natural increase of an ethnic group is the same as republic level natural increase. Anderson and Silver, 'Demographic sources (1989), pp. 635-636
[137] Heleniak, 'End of Empire (2003)', p.141

data constructed here will also be useful to tackle the existing research questions of the Soviet migration literature: Did Russianization[138] or ethnic mixing/unmixing occur, accelerating or diminishing during the transition period? Also, the data is expected to be used to quantitatively analyse the determinants of the migration and the ethnic diversity levels in the Soviet and post-Soviet space, which will be scrutinised in the later chapters.

To briefly summarise the estimation strategy and the results, this chapter attempts to estimate the regional net migration of major ethnic groups using a residual method, i.e. population change minus natural increase. The Soviet and post-Soviet censuses provide ethnic composition at the regional level, while vital statistics, obtainable from administrative records, are not available by ethnicity. I estimated regional level birth and death counts of an ethnic group by regressing republic level data on urbanisation rate and sex ratio. The constructed database, as a result, shows how members of titular ethnic groups had been distributed across the Soviet territories during the late-Soviet period, resulting in ethnic mixing in the sources and destinations. After the collapse, they moved to their own titular FSU states, e.g. Kazakhs to Kazakhstan or Ukrainians to Ukraine, which can be described as the migration in the direction of ethnic unmixing. This change in the migration patterns cannot be fully explained by the economic conditions because many have moved from more to less developed regions. Ethnic affinity must have played a role, as most FSU states saw an increase in their titular population after the collapse.

The outline of this chapter is as follows. Section II will discuss the commonly used sources of migration flows in the USSR and FSU countries and their associated measurement issues. Section III then introduces the main estimation strategy measuring the net regional migration of ethnic groups. Then the main results obtained by this method will be presented in Section IV, discussing whether the estimated net migration data is compatible with the observations of the previous work. Section V concludes.

[138] This means the spread of ethnic Russians and Russian language in an area, distinguished from Russification, which indicates the assimilation of non-Russian people. Aspaturian, V., "The non-Russian nationalities." In *Prospects for Soviet society* (1968), pp. 35-63

II. Sources and measurement issues

There are quite a few sources which can be used to estimate migration movements in the last decade of the Soviet era and in the post-Soviet period. The census is a good starting point for analysing Soviet and post-Soviet migration patterns, and alternatives such as administrative records, household surveys, and immigration-by-origin methods exist[139].

The Soviet authorities had conducted six national population censuses roughly once a decade since 1926[140], among which the last three have information on migration. The migration studies were based on the "residence change in the previous two years" item for 1970 census and the place-of-birth data for 1979[141]. The 1989 census, which turned out to be the last Soviet census, has abundant information about migration. Volume XII of the census classifies the duration of stay in the place of permanent residence by republic, region, place of birth and nationality so that the data can be used for comprehensive understanding of the migration patterns of its population. In addition, the census data also contain substantial information about urbanisation process, including net rural-to-urban migration and current urbanisation rates, and these are also an important source of analysing internal movements.

All Soviet successor states except Uzbekistan have also conducted population censuses with a similar type of information in around 2000. As shown in Table 2-1, all censuses have information relating to migration, either the place of birth or place of previous residence. Year of arrival and citizenship entries also give additional information about the internal and external movements of population.

[139] Household survey and immigration-by-origin data are not relevant and omitted in this chapter. It was only after 2000 when household surveys were introduced to complement other statistics, e.g. census.
[140] Censuses were conducted in 1926, 1937, 1939, 1959, 1970, 1979, and 1989.
[141] Rowland, R., 'Economic Region Net Migration Patterns in the USSR: 1979-89', *Soviet Geography* vol. 31 no.9 (1986), p.121

Table 2-1. The list of 2000 Round Censuses taken in the FSU states

Country	Census Year	Place of Birth	Place of Previous Residence	Year of Arrival	Citizenship
Armenia	2001	Yes	Yes	Yes	Yes
Azerbaijan	1999	Yes	Yes	Yes	Yes
Belarus	1999	Yes	Yes	Yes	Yes
Estonia	2000	Yes	Yes[1)]	Yes	Yes
Georgia	2002	Yes	Yes	Yes	Yes
Kazakhstan	1999	Yes	Yes	Yes	Yes
Kyrgyzstan	1999	Yes	Yes	Yes	Yes
Latvia	2000	No	Yes[2)]	No	No
Lithuania	2001	Yes	Yes[2)]	No	Yes
Moldova	2004	Yes	Yes	Yes	Yes
Russia	2002	Yes	No	No	Yes
Tajikistan	2000	Yes	Yes	Yes	Yes
Turkmenistan	1995	Yes	Yes	Yes	Yes
Ukraine	2001	Yes	Yes	Yes	Yes
Uzbekistan[3)]	–	–	–	–	–

1) Place of previous residence during the 1989 census
2) Place of previous residence one year prior to the census
3) No census has been conducted in Uzbekistan since the disintegration of the USSR
Source: Makaryan, 'Estimation of International Migration in Post-Soviet Republics', *International Migration* vol.53 no. 5 (2015), p.33

Census statistics are far from perfect. Titma and Tuma's 1992 work[142] reveals six factors affecting the low reliability of Soviet census data, including data falsification and deformation by the republics' chief-staffs, dishonest response, and bad quality of input, data coding and inquiries[143]. Also, many demographers have pointed out the unreliability and undercounting of migration statistics in the FSU countries even after the break-up, mainly because of lack of trust on the confidentiality of responses and the existence of undocumented migrants[144]. Emigration abroad, in particular, is hard to be captured in census unless it has relevant questions such as "duration of absence', or 'residence of children or siblings", none of which were included in

[142] Titma, M., and Tuma, N., *Migration in the former Soviet Union*, (Cologne, 1992), pp.13-14
[143] For example, Mikk Titma, who himself participated in processing the census data, testifies that it was usual to have input errors in one-tenth of entries. The data coding and enumeration were done by unprofessional and poorly motivated staff.
[144] Arel, D., 'Demography and Politics in the First Post-Soviet Censuses', *Population* vol. 57 no.6 (2002), pp.806-807

Soviet or post-Soviet censuses[145]. Another limitation of census data is that it does not take into account temporary migrants since the interval between two consecutive censuses is usually around ten years.

These limitations can be partly addressed by exploiting other sources, such as administrative records of population registration (*propiska* discussed earlier). These have been widely used to measure internal migration of Soviet population and are more useful to capture the inflows and outflows of migrants in a short period, while the census is better used for finding out migrant stock or long-term trend. *Propiska* was originally used to control free movement of the Soviet population, but it also provides relatively accurate migration statistics. Soon after the Soviet Union dissolved, the Soviet type of obligatory *propiska* was abolished and replaced by a new, more liberal, registration system on a declaratory basis in Russia and other FSU countries[146]. This change guaranteed the freedom of movement for its citizens at the cost of downward mismeasurement of migration, as many no longer had an incentive to report a change in residence[147]. Despite the problem, arrival and departure counts which are based on *propiska* and published yearly by state statistical committees will be one of the main sources of migration data used in this thesis because those are the best available, and most comprehensive, data source as of now. These records can be found in the *Demographic Yearbook of the USSR* and the demographic yearbooks of FSU states and Interstate Statistical Committee of the Commonwealth of Independent States (CISstat)[148].

The sources above provide direct measures of migration flows, but the literature frequently relies on the indirect measures, such as net migration derived by the residual method. The residual method requires the statistics of total population change and natural increase so that the contribution of net migration to population change can be calculated. The total

[145] Makaryan, 'Estimation', p.34
[146] Korobkov and Zaionchkovskaia, 'Changes in migration patterns', p.483
[147] Ibid., p.483
[148] 11 out of 15 FSU republics are the members of the Commonwealth of Independent States (CIS). Non-members' (Baltics and Georgia) statistics are obtained in the official statistical agencies of each country.

population and crude birth and death counts are usually more easily obtainable and tend to be more accurate than migration statistics. When it comes to migration of ethnic groups, the net migration method is particularly useful because the Soviet migration statistics rarely provided the information regarding the migrants' ethnicity. On the other hand, the population of almost all nationalities and their vital statistics are available in the census data and demographic yearbooks for both late- and post-Soviet periods. One advantage of using the residual method is that the regional patterns of net migration, in addition to country-level data, can be estimated since the sources have the regional level statistics of population and natural increase.

Granted, it is not true that the residual method has only upsides. As the residual method needs population data from the census, it may be subject to the same reliability issues as discussed above. Besides, the ethnicity or nationality item was reported by the respondents themselves, and there is a possibility that they did not want to reveal his or her ethnicity honestly and consistently. In other words, the changes in ethnic composition can be not only the results of natural increase and in- and out-migration but also affected by the ethnic re-identification, e.g. those who reported their identity as Tatar in 1979 change it to ethnic Russian in 1989[149]. Though there has been little information about this phenomenon during the Soviet period, some argue that there is evidence of ethnic re-identification of non-Russian nationalities into Russian or other major nationality of the region in the 1960s[150]. Therefore, the aspect of self-reporting should be considered when interpreting the results obtained by the residual method.

However, the margins of the error arising from this issue might not be too big, since the reporting of ethnicity was not based on nationalist sentiment or biological tie but was rather constructed and institutionalised through a series of nationality policies discussed in the introductory chapter. Also, the idea that people can choose their nationality is from Western

[149] Anderson and Silver, 'Demographic sources', p.611

[150] The number of Russified ethnic minorities was estimated to be around 600,000, which accounts for less than 0.5% of the Russian population. Anderson, B., and Silver, B., 'Estimating Russification of ethnic identity among non-Russians in the USSR', *Demography* vol. 20 no. 4 (1983) pp.461-489

culture. There is large literature comparing civic nationalism versus ethnic nationalism in sociology, and they often argue that it is not common for people from the eastern culture to change their nationality[151]. Brubaker strongly argues that one's nationality in the Soviet times depended on parental nationality and that there is no possibility of individual choice unless he or she is born to interethnic marriages[152].

What remains is the concern about the ethnicity choice for the children of the intermarried couples. According to Arutyunyan and Bromley, around 12 per cent of total Soviet families were ethnically mixed, and their children could choose between the nationalities of their parents when they become 16[153]. Though it is not possible to fully address this issue in my thesis, I assume that the re-identification is a form of ethnic migration, in that they sought after the better opportunity by changing their ethnicity even if they did not change their place of residence[154]. The idea of "vote with one's feet" can be applied here by varying it as "vote with one's identity choice".

To sum up the section, one can use a census for measuring immigration stock and administrative records / residual method for measuring immigration flows. Despite some limitations, the best available way to estimate the migration of ethnic groups is the residual method utilising the ethnic composition data from census and vital statistics from administrative records. The details of the estimation strategy will be discussed in the next chapter, but the list of available sources for Soviet and post-Soviet migration measurement is summarised in Table 2-2.

[151] Anthony, S., *Nationalism: Theory, Ideology, History*, (Cambridge, 2nd ed., 2010), p.43
[152] Brbaker, 'Nationhood', 1994, p.75
[153] Arutyunyan, Y., and Bromley, Y. (ed.), *Sotsial'no-kul'turnyy oblik sovetskikh natsiy (The socio-cultural aspect of Soviet nations*) (Moscow, 1986), recited from Gorenburg, D. 'Rethinking Interethnic Marriage in the Soviet Union', *Post-Soviet Affairs* vol. 22 no.2 (2006), p.147
[154] However, the ethnic re-identification in the late-Soviet period can be the subject of future research, as no researchers have paid attention to this since Anderson and Silver. Chapter 5 for details.

Table 2-2. Type of migration data and source

<table>
<tr><th colspan="2"></th><th>In-migration</th><th>Out-migration</th><th>Net Migration</th></tr>
<tr><td rowspan="3">Before dissolution</td><td>Within a republic</td><td rowspan="2">1989 USSR Census

USSR Demographic Yearbook 1990</td><td rowspan="2">USSR Demographic Yearbook 1990</td><td rowspan="6">1979, 1989, 2000 round censuses,

Vital statistics from demographic yearbooks (Residual method)</td></tr>
<tr><td>Between Soviet republics</td></tr>
<tr><td>From/to foreign countries[1)]</td><td>N/A</td><td>Immigration-by-origin of receiving countries</td></tr>
<tr><td rowspan="3">After dissolution</td><td>Within a state</td><td rowspan="3">2000 round censuses

Demographic yearbooks</td><td rowspan="3">Demographic yearbooks or official migration statistics

immigration-by-origin of receiving countries</td></tr>
<tr><td>Between FSU states</td></tr>
<tr><td>From/to foreign countries[1)]</td></tr>
</table>

1) Other than FSU states

III. Estimation Strategy

The main aim of this section is to construct a database of regional net migration of major ethnic groups. I will do this by looking at the changes in the distribution of nationalities adjusted for estimated natural increase of each ethnic group in a region. While I utilise the regional level distribution of nationalities and natural increase statistics published by Goskomstat USSR for the database construction, I will also have to make some assumptions and estimations to create ethnic-specific migration flows.

Before measuring regional net migration, it would be helpful to become familiarised with the administrative divisions of the Soviet Union and FSU states first. The USSR was divided into 15 union republics, each of which had been named after a titular nationality and formed an

Figure 2-1. Economic regions of USSR, 1962

Source: US CIA, 1962, Retrieved from the Library of Congress (https://www.loc.gov/item/78694965)

independent state after the dissolution. These 15 union republics can be classified into 19 economic regions (*raions*)[155], as shown in Figure 2-1. The Russian Soviet Federative Socialist Republic (RSFSR) had ten *raions* and Ukraine had three, whereas three of these economic regions are each a union republic itself (Kazakhstan, Belorussia, and Moldavia) and the other three of them are the aggregation of three or four neighbouring republics: the Baltic (Latvia, Lithuania, Estonia), Transcaucasia (Georgia, Azerbaijan, Armenia), and Central Asia (Uzbekistan, Tajikistan, Turkmenia, Kirghizia).

The census and demographic yearbook statistics also provide data at the lower level of administrative divisions, which is called *oblast or krai* in Russian. The Autonomous Soviet Socialist Republics (ASSRs) had the same rank as *oblast*. There were some other autonomous regions such as autonomous *oblast* or *okrug,* but they were subordinated to a normal *Krai or oblast* and were not included separately in my dataset. The USSR had around 160 *oblasts, krais* and ASSRs altogether, but since the regions have been merged and split from time to time, the number of regions kept changing during the period of concern. Figure 2-2 shows the administrative divisions at the *oblast, Krai,* or ASSR level in 1974[156].

[155] *Raion* was translated to "economic region" since the Soviet authority planned economic policies and compare regional performance based on this unit of division. Bernard P., *Planning in the Soviet Union*, (London, 2013), pp.33-34

[156] See appendix for the list of oblast/krai/ASSRs in the Soviet Union.

Figure 2-2. The Administrative divisions of USSR, 1974

Source: Map Collection, Perry-Castañeda Library, University of Texas-Austin

I will now describe the estimation method of the regional net migration of ethnic groups in the period between 1979 and 1989 and then extend it to the later period. The change in ethnic composition over the last decade of the Soviet era can be obtained from the 1979 and 1989 USSR censuses. Since the data are available at the *oblast* and *raion* levels as well as at the union republic level[157], I can track the population change of a certain ethnic group in an *oblast* over the intercensal period. Provided that the comparable data for the 10-year total natural increase are available, it is possible to calculate the regional level net migration of the ethnic group by the residual method discussed in the previous section. The estimation strategy to obtain 10-year net migration of ethnic group *i* in region *r* can be summarised in the following equations.

[157] Institute of Demography, Higher School of Economics has published the electronic tables of ethnic composition in the USSR on its website (http://demoscope.ru).

$$M^i_{r,79\_89} = \left(Pop^i_{r,89} - Pop^i_{r,79}\right) - NatInc^i_{r,79\_89}$$

where $NatInc^i_{r,79\_89} = w^i_r \cdot s^i_r \cdot Birth_{r,78\_89} - s^i_r \cdot Death_{r,79\_89}$

$M^i_{r,79\_89}$ is 10-year total net migration, $Pop^i_{r,t}$ is the beginning of the year population and $NatInc^i_{r,79\_89}$ is the natural increase from 1979 to 1989[158], which are all of ethnic group *i* in region *r*. Using the 10-year crude births ($Birth_{r,78\_89}$), crude deaths ($Death_{r,79\_89}$) of a particular region and the share of each ethnic group in the region's population (s^i_r)[159], I estimate the natural increase of each group in the region ($NatInc^i_{r,79\_89}$). Birth counts are adjusted for ethnic specific fertility weight (w^i).

Two publications of Goskomstat USSR (1988, 1989) provide the annual data of crude birth and death in 15 union republics from 1979 to 1989, while the regional level natural increase is available for the years 1980, 1985, 1986, and 1988[160]. Some assumptions are needed to fill the gap between these years, as Rowland does in his 1990 paper when he estimates the 10-year total natural increase of every *raion* and *oblast*[161]. He calculates the "inflation ratio[162]" of each union republic and multiplies it by the 4-year sum of its oblast level natural increase. However, there was little theoretical justification for this mathematical adjustment, so I made an assumption for estimation. I assume that the population growth in a union republic was proportionally contributed by the growth rates of population in its *oblasts*. By applying the growth rate of the republic to the regional data of four base years, the annual natural increase for other 6 years can be estimated.

Since all these natural increase data are not available at an ethnic level, I need to make more assumptions to estimate the natural increase of each ethnic group in a region and in the

[158] Sum of the natural increase from 1979 to 1988

[159] Average share between 1979 and 1989 ethnic composition

[160] The natural increase for 1989 is also available, but the data up to 1988 are relevant here, because the change in ethnic composition is from January 1979 to January 1989.

[161] Rowland, 'Economic Region', p.659

[162] $\frac{\text{10−year total natural increase}}{\text{sum of natrual increase in 1980,1985,1986,1988}}$

whole USSR. I generally assume that the total natural increase in a region is contributed by the residing ethnic groups according to their shares. That is, if the share of Tatars in the regional population is 35%, 35% of the natural increase in the region is attributable to Tatars. However, since each ethnic group has different birth rates, the contribution of each ethnicity to regional birth counts is adjusted for fertility weight (w^i)[163]. Table 2-3 shows that the total fertility rates of Slavic and Baltic nationalities had relatively lower than those of Central Asian ones and this ethnic variation can be captured in my estimation method.

Table 2-3. Total fertility rates by ethnicity (Selected)

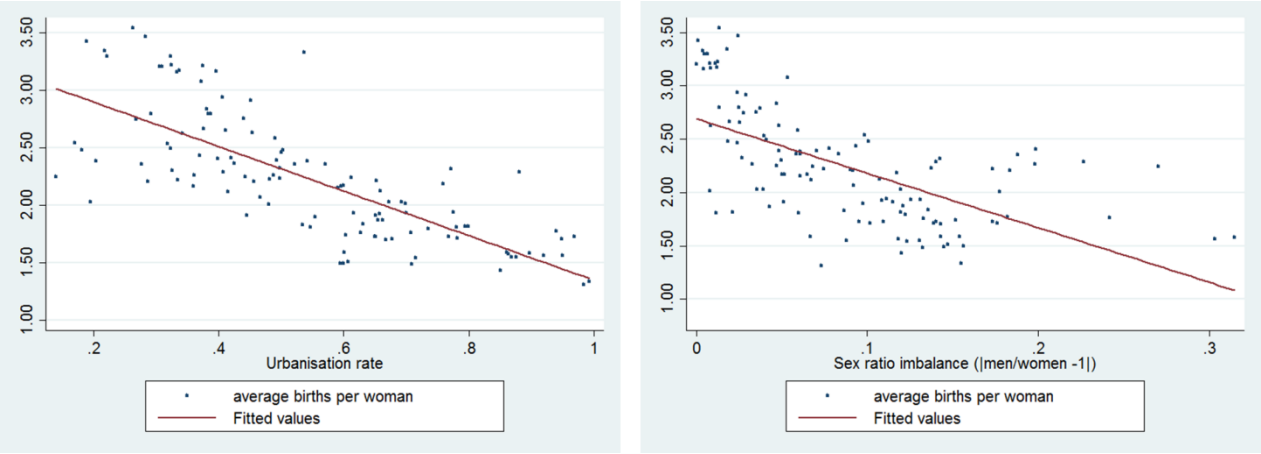
USSR		**Russian SFSR**	
Average	**1.93**	**Average**	**1.80**
Russian	1.71 (0.89)	Russian	1.72 (0.96)
Ukrainian	1.76 (0.91)	Ukrainian	1.81 (1.01)
Belorussian	1.91 (0.99)	Belorussian	1.82 (1.01)
Uzbek	3.21 (1.66)	Kazakh	2.44 (1.36)
Kazakh	2.80 (1.45)	Armenian	1.76 (0.98)
Georgian	1.81 (0.94)	Tatar	2.13 (1.18)
Azerbaijani	2.46 (1.27)	Jew	1.31 (0.73)
Lithuanian	1.73 (0.90)	**Kazak SSSR**	
Moldavian	2.17 (1.12)	**Average**	**2.36**
Latvian	1.51 (0.78)	Kazakh	2.80 (1.19)
Kirgiz	3.30 (1.71)	Russian	1.94 (0.82)
Tadzhik	3.47 (1.80)	Ukrainian	2.22 (0.94)
Armenian	2.02 (1.05)	German	2.58 (1.09)
Turkmen	3.16 (1.64)	Tatar	2.31 (0.98)
Estonian	1.59 (0.82)	Uzbek	3.08 (1.31)

Note: The average total number of births per woman in her lifetime. In parenthesis is the fertility weight (w^i) in the estimation equation, calculated as the ratio of the number of births to the USSR or union republic's average

Source: 1989 USSR Census

[163] w^i is calculated as the ratio of the number of births per woman of the group to the average of the republic to which it belongs (Table 2-3).

Figure 2-3. Fertility and urbanisation rates / sex ratios



The potential problem with the fertility weight is that it does not contain regional variation. 1989 census only provides the birth per women by ethnicity for the whole USSR and each union republic, but in the latter case often only for Russians and titular ethnic group. This means that the fertility weight cannot take it into account even if Armenians in Volgograd have significantly low fertility rate than, say, Armenians in Tashkent. In order to overcome this limitation, I attempt to use the additional information I have about urban population and sex ratios of some ethnic groups. I run a regression of the average number of birth per woman on urbanisation rates[164] and sex ratio imbalance[165] and predict the regional fertility weights for ethnic groups (w_r^i) with the obtained coefficients.

From Figure 2-3, one can clearly see that both urbanisation rates and sex ratio imbalance are negatively associated with fertility. In other words, the more urbanised an ethnic group is and the bigger the difference between the numbers of their men and women is, the fewer babies a woman is likely to have in her life. Some regressions confirm this prediction as Column (1) of Table 2-4 shows that the coefficient of urbanisation is -1.42 and sex imbalance is -2.29, with both being significant at 1% level. I add a dummy variable, Central Asia because it had been reported that Central Asian nationals had higher fertility than others during the Soviet era. Column (2) confirms the prediction by showing the positive and significant coefficient of this

[164] Urbanisation rates = Urban population / Total population
[165] Sex ratio = |(Male population / Female population) – 1|

dummy variable. Alternatively, in Column (3) and (4), I replace the sex ratio imbalance variable with its logarithmic form, assuming that the relationship between sex imbalance and fertility is non-linear. The regressions with logarithm fit the model better and report a negative coefficient which implies that the curve is concave to the origin. The explanatory power (measured by R^2) is the biggest in the fourth model, so I apply the fitted values to each ethnicity in each region to obtain w_r^i, controlling for some outliers[166].

With this weight, the contribution of an ethnic group is inflated or deflated according to the fertility rate of the group. Since I have no data regarding the mortality rates available at the ethnic level and I find little evidence that the rates were significantly different among ethnic groups during the Soviet period, I made an assumption that the death rate is the same across the nationalities if they live in the same region[167]. Once the regional natural increase and net migration for each ethnic group are estimated, they can be summed up to *raion*, union republic and the whole USSR levels.

Table 2-4. Regression results for an average number of births per woman

Dependent Variable: Average number of births per woman	(1)	(2)	(3)	(4)
Urbanisation ratio	-1.43*** (-8.07)	-1.49*** (-8.25)	-1.29*** (-8.75)	-1.35*** (-9.13)
Sex ratio imbalance	-2.29*** (-4.04)	-2.07*** (-3.76)		
Log (Sex ratio imbalance)			-0.20*** (-7.47)	-0.18*** (-6.71)
Central Asia		0.32*** (3.10)		0.19** (2.08)
Constant	3.22*** (36.22)	3.20*** (37.44)	2.37*** (17.55)	2.43*** (17.91)
Total observation	101	101	101	101
R^2	0.62	0.65	0.71	0.73

Note: In parentheses are t-statistics (z-statistics for Heckman estimators). ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

[166] Outliers come out when the number of residents is too small and the ratio of men to women is over 2.

[167] It does not mean that my strategy totally ignores ethnic variation in mortality. If an ethnic group has higher death rates, the regions where this ethnic group has high share will show high mortality rates. This can be captured in my dataset.

Table 2-5. An example of estimates, Tatars in Volga *raion*

(*i*=Tatars)	$Pop^{i}_{r,89} - Pop^{i}_{r,79}$ (persons)	w^{i}_{r}	s^{i}_{r} (%)	$Birth_{r,78\_89}$ (persons)	$Death_{r,79\_89}$ (persons)	$NatInc^{i}_{r,79\_89}$ (persons)	$M^{i}_{79\_89}$ (persons)	*Annual Net migration*[2)] (per 1000)
Volga raion	**169,098**	**1.18**	**13.69**	**2,586,311**	**1,690,215**	**185,287**[1)]	**-16,189**	**-0.80**
Astrakhan oblast	874	1.09	7.48	164,310	100,028	5,879	-5,005	-7.03
Volgograd oblast	444	1.10	1.02	398,609	282,781	1,591	-1,147	-4.45
Kuibyshev oblast	11,675	1.05	3.44	495,262	325,942	6,671	5,004	4.57
Penza oblast	3,071	1.39	5.29	225,042	173,789	7,319	-4,248	-5.33
Saratov oblast	4,919	1.12	1.92	404,693	302,817	2,880	2,039	4.04
Ulyanovsk oblast	24,328	1.10	11.01	213,285	143,595	10,034	14,294	9.73
Kalmyk ASSR	-14	1.23	0.43	76,525	27,504	286	-300	-22.77
Tatar ASSR	123,801	1.06	48.06	608,585	333,759	150,626	-26,825	-1.57

Note 1) Note that $NatInc^{i}_{r,79\_89}$ for the whole *raion* is not the same as the one calculated by the equation. It is the sum of *oblast*-level $NatInc^{i}_{79\_89}$ below, and this difference comes from the fact that my estimation reflects the regional variation of fertility levels.

2) Annual net migration rate is obtained by dividing annual average net migration by the average population of Tatars between 1979 and 1989.

Taking the example of Tatar in *Volga raion* of Russia (Table 2-5), net migration of Tatars from 1979 to 1989 was -16,189 in the economic region, obtained by subtracting Tatars' natural increase (185,287) from the change in Tatar population (169,098). The natural increase of Tatars is estimated by summing up the *oblast*-level natural increase, which is the product of the weighted share of Tatars and the total natural increase in an *oblast*. The *raion*-level natural increase of Tatars, the sum of the *oblast*-level ones, is not the same as the one applying the weighted share to the total natural increase of the *raion*, because this estimation strategy captures the regional variation of fertility.

The same method can be applied to the post-Soviet period. The previous section discusses the censuses conducted in the FSU states around the year 2000, and most of them reveal the ethnic information, often at the regional level. The availability and level of birth and death counts vary across the countries, but the biggest states in the area, including Russia and Ukraine, usually have regional level vital statistics. Whereas the *oblast*-level data is sometimes unavailable, namely for Central Asian states, *raion*-level net migration can be calculated for the whole FSU area for the 1990s.

IV. Results

Before collapse, 1979-89

Table 2-6 summarises the population change of major nationalities in the USSR from 1979 to 1989, dividing it into two components: natural increase and net migration. The population of ethnic Russians increases in the European part of the Soviet Union whereas it decreases in Transcaucasia and Central Asia, generally consistent with the analyses of previous works. The Soviet demographers have agreed that the return migration of ethnic Russians from non-Slavic southern republics had begun from the mid-1970s and continued during the transition period[168]. The movement of ethnic Russians toward RSFSR during the late Soviet period has not been confirmed by the actual migration data in the previous literature, while Table 2-6 clearly shows that the net migration rates of ethnic Russians are positive in Russia and negative in Transcaucasia and Central Asia. The number of ethnic Russians in other Slavic and Baltic republics did not decrease, however, indicating that they continued to migrate towards their relatively close neighbours during the 80s[169].

Looking at the net migration of other ethnic groups in RSFSR, the population of other titular groups in RSFSR also increased due to both natural increase and positive net migration. Russia seems to have attracted not only the ethnic Russians but also other ethnic groups, and these groups appear to migrate from their titular republics inferring from the fact that some of these groups showed negative net migration in their homes (e.g. Ukrainians, Belarusians, Armenians, Kazakhs, and Uzbeks).

[168] Kaiser, *Geography of Nationalism*, p.166; Zaionchkovskaia, Migration patterns, pp. 17-18; Codagnone, The new migration in Russia in the 1990s, in *The New Migration in Europe* (London, 1998), p.89; Heleniak, 'End of Empire (2003)', p. 137

[169] This also confirms the arguments of the previous works, for example, Kaiser (1994, p.166).

Table 2-6. Population change by ethnicity, 1979-89, major ethnic groups

	Population by nationality				Change from 1979 to 1989				
	%		Thousands		% Change	Thousands			Per 1000
	1979	1989	1979	1989		Total change	Natural increase	Net migration	Annual rate[1)]
Russia	100	100	137,410	147,022	7.3	9,612	8,061	1,551	1.09
Russians	82.6	81.3	113,522	119,866	5.6	6,344	5,073	1,271	1.09
Ukrainians	2.7	3	3,658	4,363	19.3	705	256	449	11.20
Belarusians	0.8	0.8	1,052	1,206	14.6	154	64	91	8.06
Kazakhs	0.4	0.4	518	636	22.8	118	77	41	7.11
Tatars	3.6	3.7	5,006	5,522	10.3	516	564	-48	-0.91
Chuvash	1.2	1.2	1,690	1,774	5.0	84	166	-82	-4.73
Bashkir	0.9	0.9	1,291	1,345	4.2	54	157	-103	-7.81
Germans	0.6	0.6	791	842	6.4	51	63	-12	-1.47
Jews	0.5	0.4	692	537	-22.4	-155	0.4	-156	-25.39
Ukraine	100	100	49,609	51,452	3.7	1,842	1,795	48	0.09
Ukrainians	73.6	72.7	36,488	37,419	2.6	930	1,412	-482	-1.30
Russians	21.1	22.1	10,472	11,356	8.4	884	252	632	5.79
Jews	1.3	1.0	633	486	-23.2	-146	1.4	-148	-26.45
Belarus	100	100	9,533	10,152	6.5	619	648	-28	-0.28
Belarusians	78.9	78.6	7,568	7,905	4.5	337	552	-215	-2.78
Russians	11.9	13.2	1,134	1,342	18.3	208	47	161	13.00
Poles	4.1	4.2	403	418	3.7	15	25	-10	-2.44
Lithuania	100	100	3,391	3,675	8.4	283	192	91	2.58
Lithuanians	80.0	80.0	2,712	2,924	7.8	212	121	91	3.23
Russians	9.0	9.4	303	344	13.5	41	14	27	8.35
Georgia	100	100	14,057	15,727	11.9	408	487	-79	-0.53
Georgians	68.8	70	3,433	3,787	10.3	354	315	41	1.14
Russians	6.5	5.0	372	341	-8.3	-30	23	-53	-14.87
Armenians	9.0	8.1	448	437	-2.5	-11	52	-63	-14.24
Armenia	100	100	3,037	3,305	8.8	268	487	-291	-9.18
Armenians	89.7	93.3	2,725	3,084	13.2	359	511	-153	-5.27
Russians	2.3	1.6	70	52	-25.7	-19	9	-28	-45.90
Kazakhstan	100	100	14,685	16,464	12.1	1,780	2,639	-858	-5.51
Kazaks	36.0	39.7	5,289	6,535	23.6	1,245	1,373	-128	-2.17
Russians	40.8	37.8	5,991	6,228	4.0	236	728	-492	-8.05
Ukrainians	6.1	5.4	898	896	-0.2	-2	65	-67	-7.47
Germans	6.1	5.8	900	958	6.4	57	115	-57	-6.14
Uzbekistan	100	100	15,389	19,810	28.7	4,421	5,021	-600	-3.41
Uzbeks	68.7	71.4	10,569	14,142	33.8	3,573	3,636	-63	-0.51
Russians	10.8	8.4	1,666	1,653	-0.8	-12	176	-188	-11.33
Kazaks	4.0	4.1	620	808	30.3	188	135	53	7.42
Tatars	3.5	2.4	531	468	-11.9	-63	56	-119	-23.82

Note: 1) Annual rate is obtained by dividing average annual net migration by mid-census population.

Some ethnic groups whose population increased show negative net migration after controlling for its relatively fertile nature. These patterns tend to be seen among the ethnic minorities whose autonomous republic is within RSFSR, namely Tatars, Chuvash, and Bashkir. The patterns shown in these groups may have caused incomplete or even wrong interpretations since the previous literature relied on the change in ethnic distribution only, not thoroughly considering the contribution of natural increase and net migration to it. For example, Kaiser said Armenians were returning to their homeland based on the increased share of Armenians in Armenia[170], but it turned out that population increase was due to natural increase whereas the net migration was in effect negative (Table 2-6). He also argued that 8 out of 16 autonomous republics in Russia experienced an increase in indigenous population not stating the reasons clearly[171], but the new dataset shows that net out-migration of titular groups occurred in 15 autonomous republics with only one exception of North Ossetia.

The Jews had already begun to leave the country even before the borders were fully opened, showing the highest level of net-out migration rate. Germans also show net out-migration, but the extent to which the outflows occur was not as big as that of Jews in the 80s. This is also in line with the previous analysis, such as Heitman's 1994 work, which argues that the emigration of Germans did not begin until the late 80s and early 90s.

More interesting results of *Raion*- and *oblast*-level net migration can be found in Table 2-7 and Figure 2-4, respectively. Now we can see the regions to and from which the ethnic groups migrate, which is a novel contribution of this chapter. Table 2-7 summarises the net migration of major ethnic groups at the *raion*-level, giving the estimated annual average numbers and rates per 1000. Figure 2-4 shows the annual net migration rates of selected ethnic groups at the level of lower administrative divisions, *oblast*. The *oblasts* coloured in red have net out-migration and the ones in blue have net in-migration, whereas yellow means the in-and out-migration in the region was balanced or its population was just inactive in migrating.

[170] Kaiser, *Geogrphy of Nationalism*, p.166
[171] Ibid., p.171

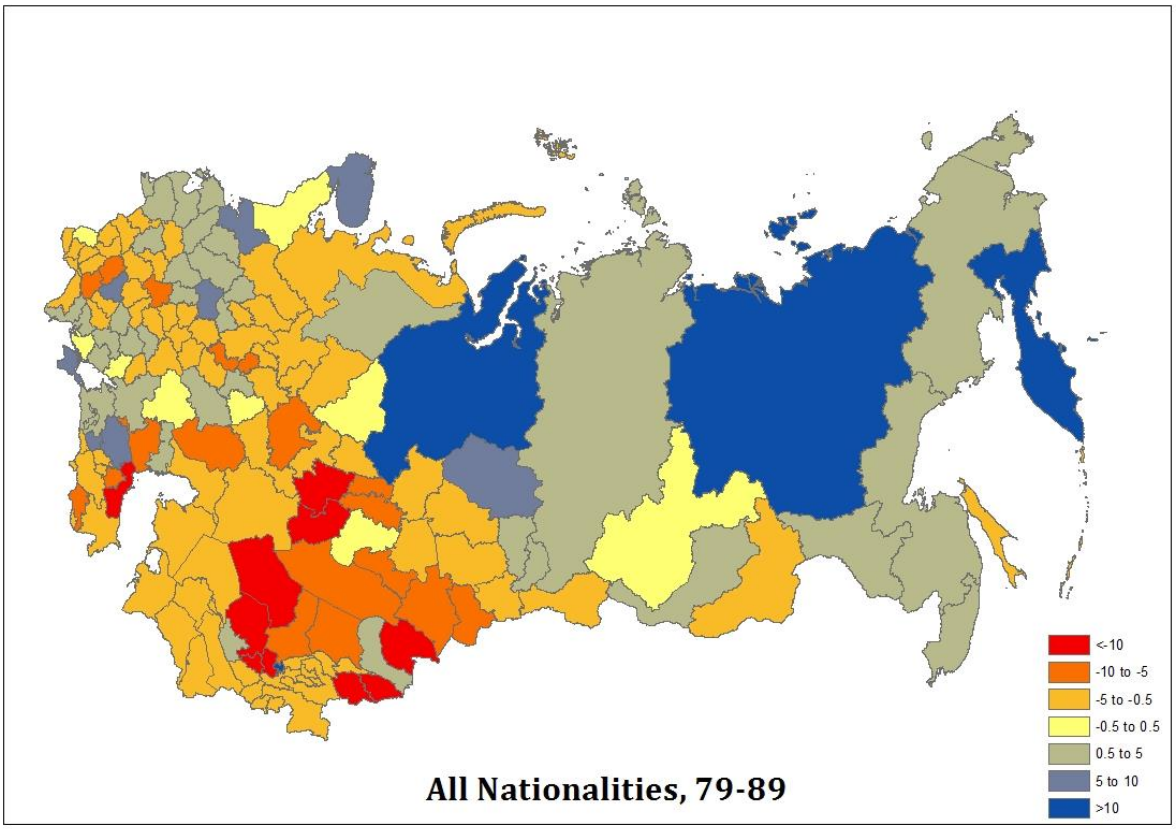
Table 2-7. Net migration of the ethnic groups, Annual average and per 1000, 1979-89

Economic Region	All Nationalities	Russians	Ukrainians	Armenians	Kazakhs	Tatars	Jews	Germans
North	4,394 (0.7)	7,013 (1.5)	2,060 (7.2)	62 (10.6)	151 (44.2)	565 (13.4)	-202 (-29.1)	-221 (-12.2)
North-West	42,154 (5.3)	36,901 (5.1)	4,833 (23.8)	434 (34.3)	404 (70.8)	434 (8.5)	-3,663 (-28.0)	82 (12.4)
Central	83,169 (2.8)	70,288 (2.5)	10,470 (17.0)	1,998 (36.1)	634 (43.5)	1,560 (6.2)	-5,968 (-23.5)	342 (16.2)
Volga-Vyatka	-25,630 (-3.0)	-11,261 (-1.8)	1,048 (16.2)	106 (28.6)	138 (74.7)	-2,549 (-10.9)	-328 (-20.1)	10 (3.0)
Central Black Earth	-16,093 (-2.1)	-15,844 (-2.1)	365 (1.5)	322 (67.4)	75 (38.5)	100 (14.0)	-309 (-27.7)	47 (14.2)
Volga	-6,746 (-0.4)	-11,524 (-1.0)	20 (0.1)	1,000 (50.7)	1,260 (5.1)	-5,502 (-2.5)	-960 (-22.7)	408 (6.4)
North Caucasia	5,895 (0.4)	-11,881 (-1.1)	4,042 (8.9)	8,576 (28.1)	181 (21.5)	-891 (-14.0)	-1,520 (-36.6)	668 (11.2)
Ural	-57,712 (-2.9)	-27,574 (-1.9)	-3,283 (-7.4)	401 (33.5)	39 (0.2)	-1,914 (-1.0)	-1,174 (-24.6)	-1,424 (-9.5)
West Siberia	86,799 (6.2)	57,317 (4.8)	15,148 (31.2)	787 (67.7)	532 (4.5)	4,879 (13.9)	-479 (-19.0)	-1,884 (-4.6)
East-Siberia	5,335 (0.6)	5,299 (0.7)	2,564 (10.1)	412 (50.5)	290 (37.0)	-1,499 (-12.8)	-423 (-34.6)	-690 (-10.5)
Far East	33,000 (4.5)	23,261 (3.9)	6,888 (12.4)	431 (50.0)	350 (40.8)	-20 (-0.2)	-499 (-21.7)	219 (12.6)
Donetsk-Dnieper[1)]	13,808 (0.6)	33,229 (5.1)	-15,994 (-1.1)	1,405 (30.3)	333 (37.7)	-275 (-3.2)	-14,770 (-26.4)	371 (10.3)
South-West[1)]	-30,225 (-1.4)	11,155 (6.7)	-35,032 (-1.8)	1,405 (30.3)	333 (37.7)	-275 (-3.2)	-14,770 (-26.4)	371 (10.3)
South[1)]	21,154 (2.9)	18,826 (6.9)	2,800 (0.7)	1,405 (30.3)	333 (37.7)	-275 (-3.2)	-14,770 (-26.4)	371 (10.3)
West (Baltic)	24,109 (2.8)	16,041 (7.0)	4,601 (21.0)	310 (48.9)	89 (43.0)	224 (14.1)	-895 (-18.9)	-105 (-9.7)
Transcaucasia	-64,246 (-4.3)	-20,925 (-24.6)	367 (4.2)	-37,509 (-9.9)	222 (67.2)	-1,039 (-29.8)	-1,549 (-34.2)	-113 (-37.8)
Central Asia	-100,262 (-3.4)	-40,024 (-12.1)	2,512 (7.9)	50 (0.6)	5,356 (6.4)	-14,617 (-21.3)	-1,178 (-13.1)	-5,258 (-29.0)
Kazakhstan	-85,835 (-5.5)	-49,184 (-8.1)	-6,662 (-7.4)	292 (17.6)	-12,758 (-2.2)	-876 (-2.7)	-427 (-20.7)	-5,771 (-6.2)
Belarus	-2,823 (-0.3)	16,121 (13.0)	4,549 (17.4)	188 (49.0)	91 (50.3)	145 (12.5)	-2,120 (-17.1)	83 (27.7)
Moldova	-6,392 (-1.5)	2,441 (4.6)	-968 (-1.7)	67 (27.8)	44 (53.3)	34 (11.2)	-1,893 (-26.0)	-525 (-56.1)

Note: per 1,000 rates are in parenthesis. See text for the sources and estimation method.

1) The net migration of the whole Ukraine replaces that of these three *raions* when regional level data are incomplete.

Figure 2-4. Regional net migration rates of major ethnic groups, 1979-89



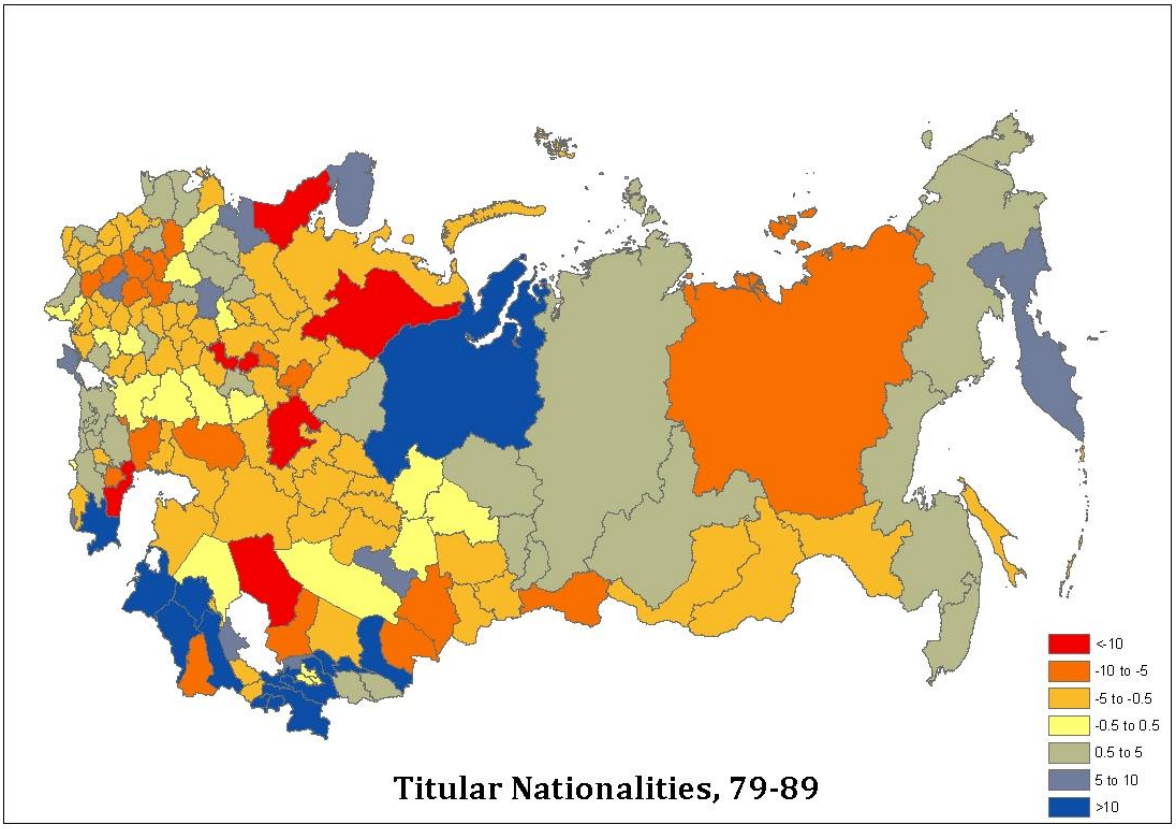
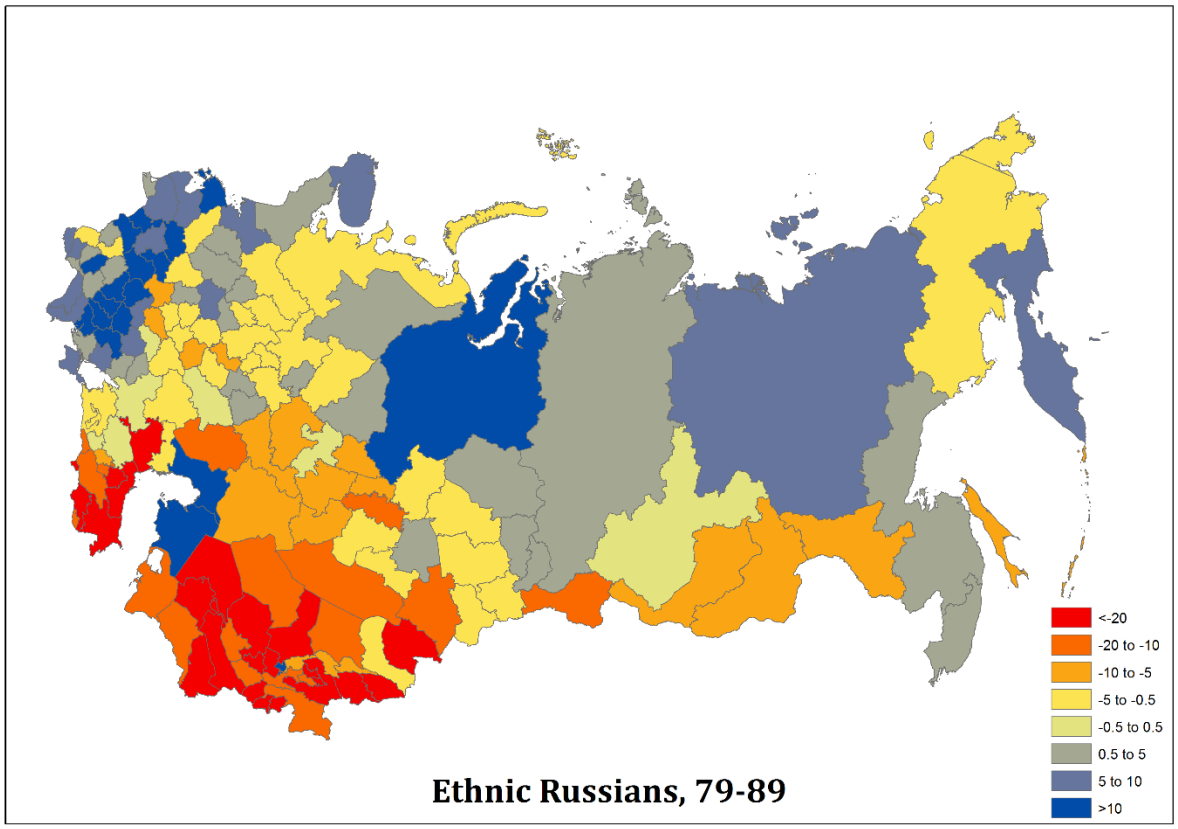


Figure 2-4. Regional net migration rates of major ethnic groups, 1979-89 (Cont.)



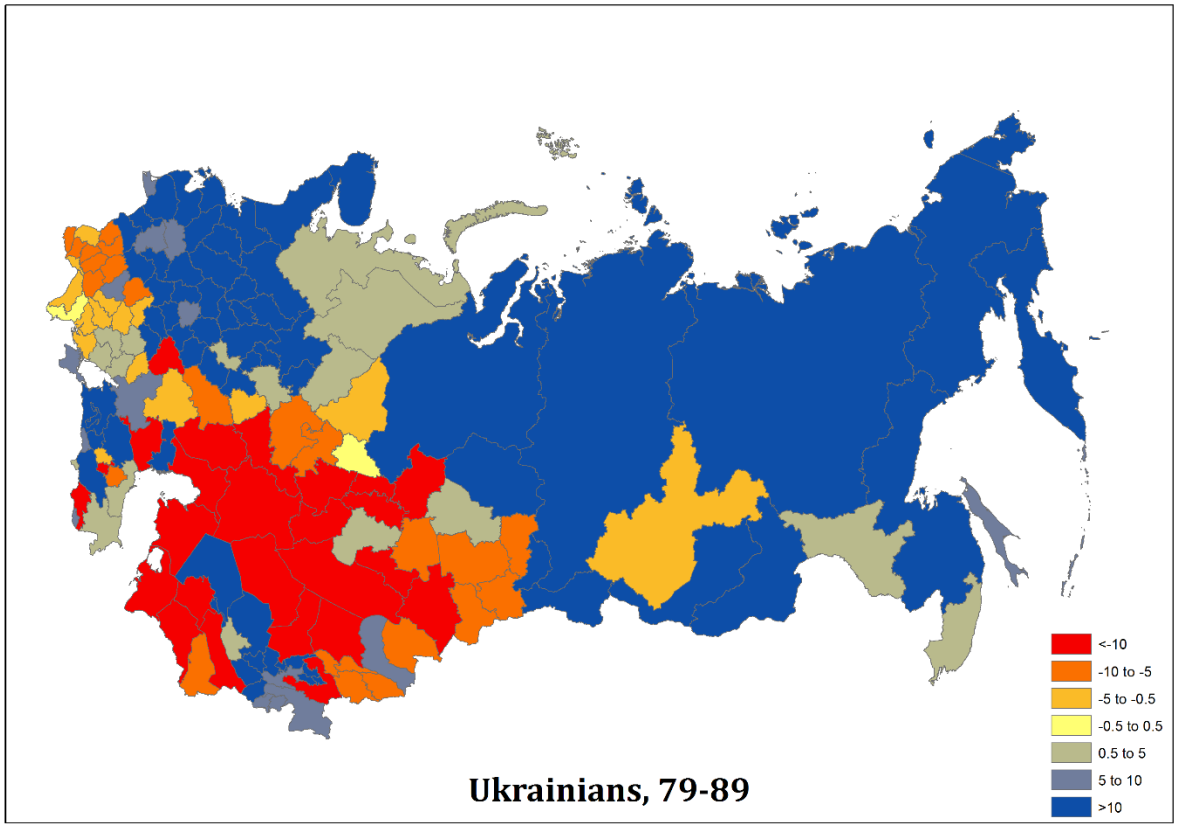
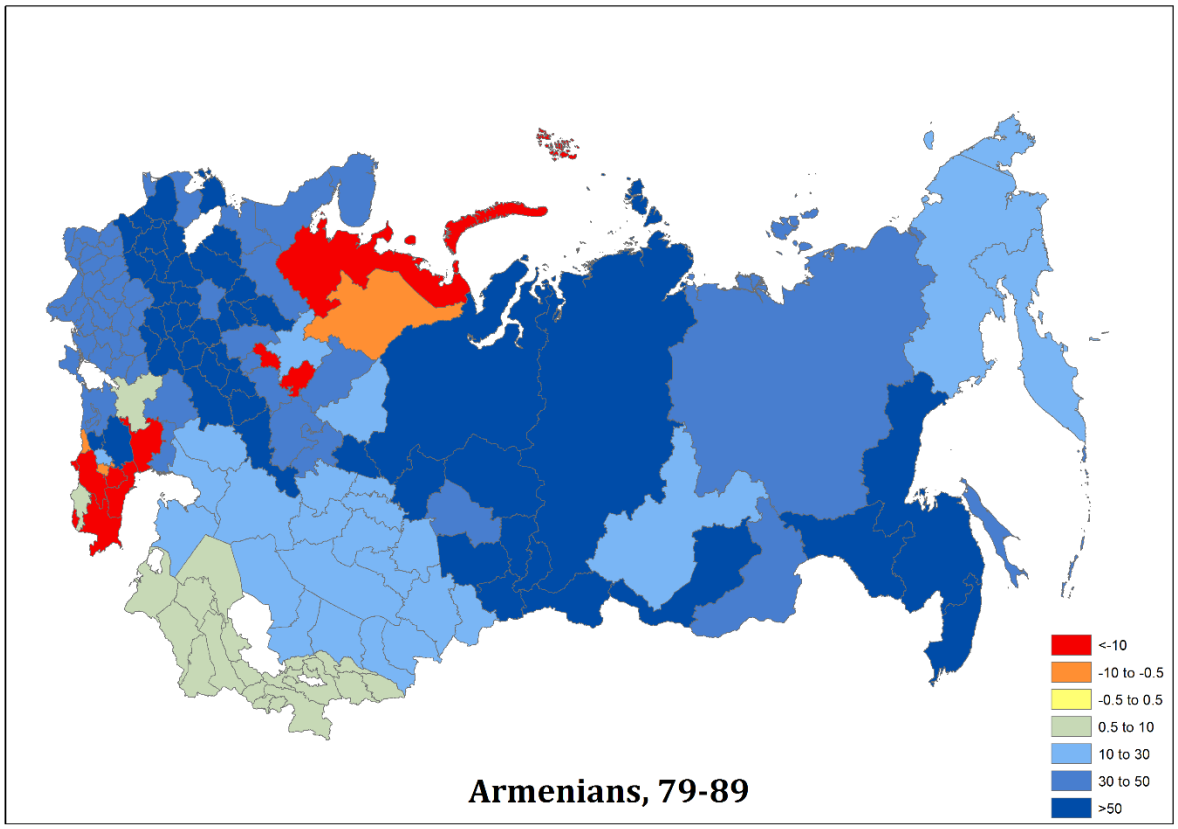


Figure 2-4. Regional net migration rates of major ethnic groups, 1979-89 (Cont.)



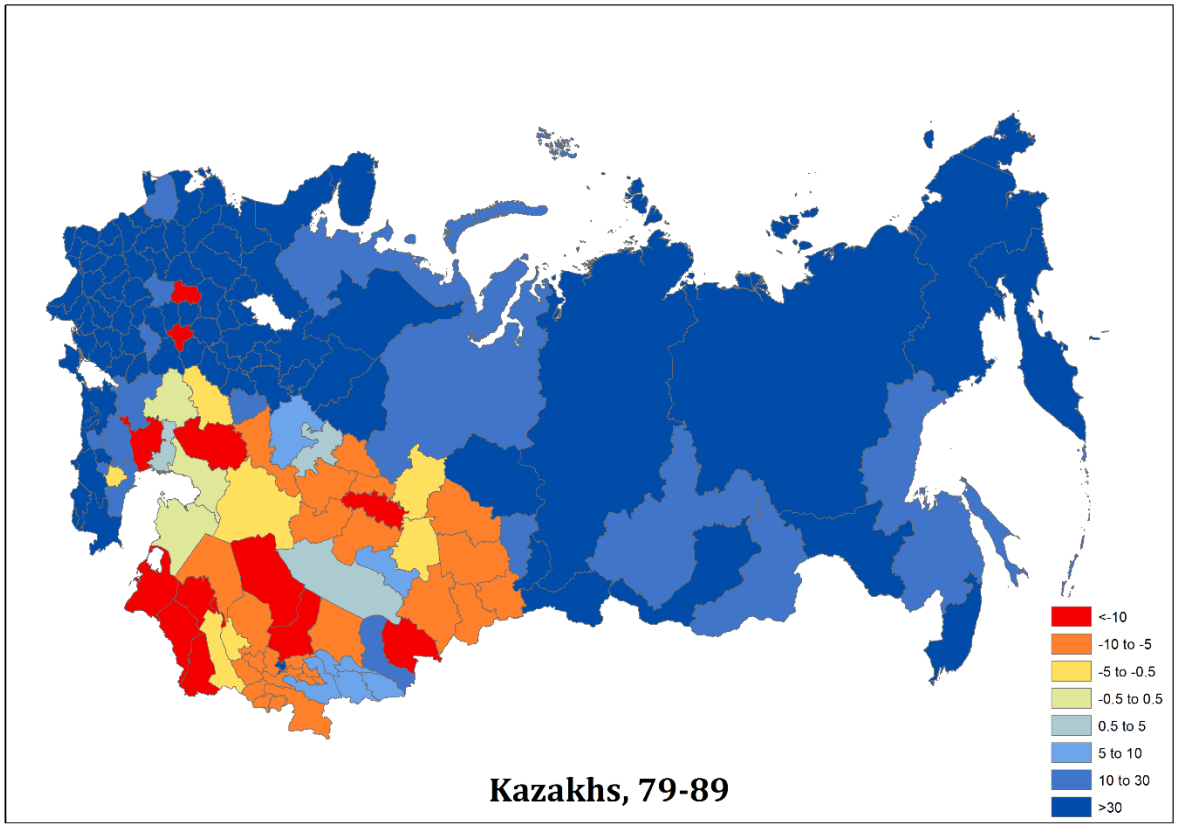
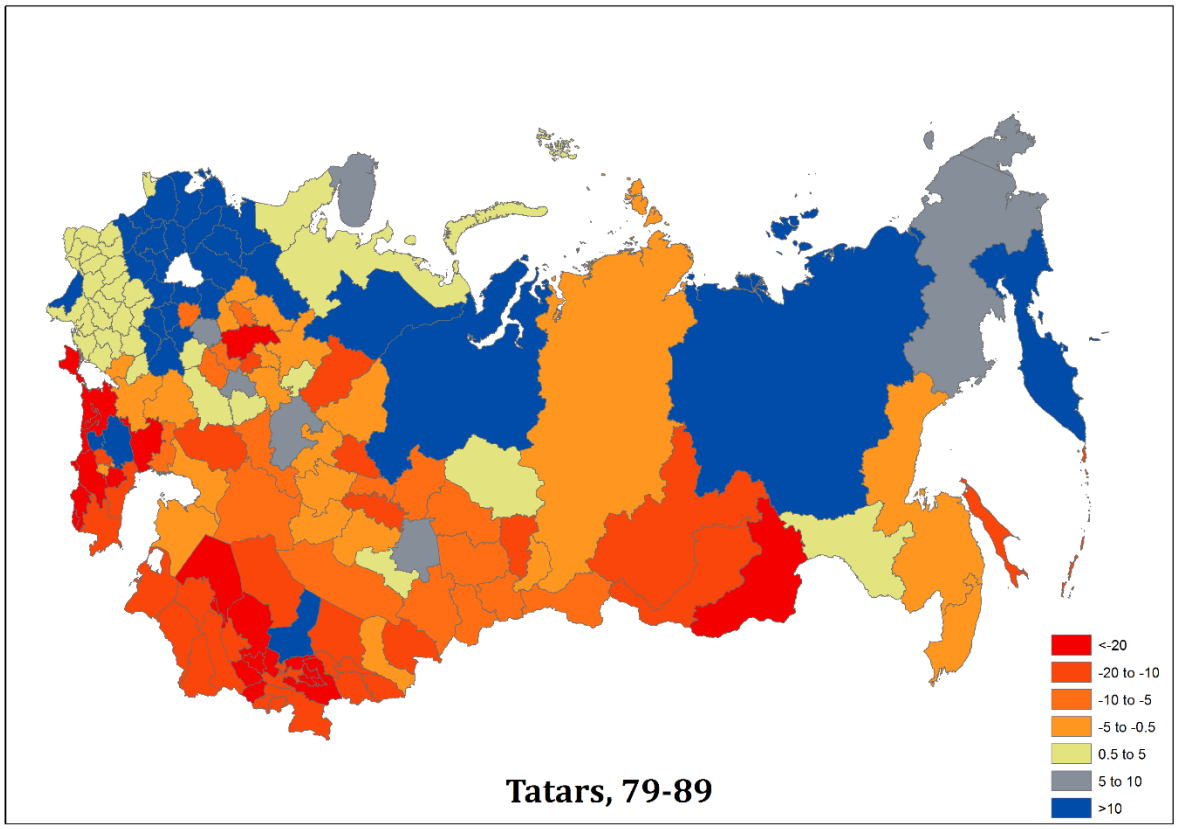
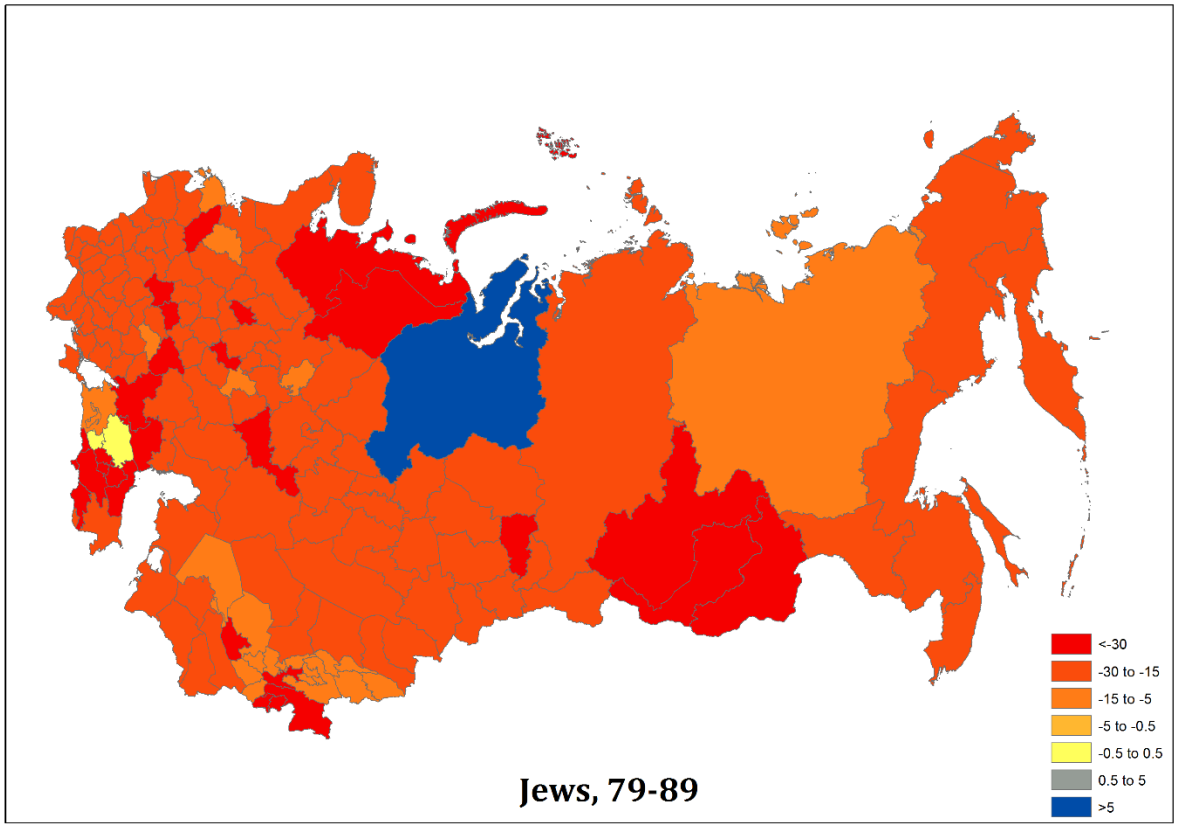


Figure 2-4. Regional net migration rates of major ethnic groups, 1979-89 (Cont.)





Note: Each map has a different legend.

The first map shows the redistribution of total Soviet population from Central Asian part to European part, namely the Baltics and Central *raions* of Russia, and Siberia. This trend is mainly led by ethnic Russians, looking at the net migration of ethnic Russians in the third map. Net out-migration from Central Asia and Transcaucasia is seen more clearly, and net in-migration into Slavic and Baltic regions is also quite intense. As shown in Table 2-7, the destination of the ethnic Russians arriving in RSFSR seems to have been Northern, Central and Siberian *raions*. Central r*aion,* including Moscow, was one of the most popular destinations for most ethnic groups except Jews, while Siberia was also attracting many members of ethnic groups in the 80s.

Similar to the Russians, Ukrainians also show positive net migration in the European part and negative in Central Asia as shown in the fourth map of Figure 2-4. The difference is that they appear to have left their titular republic and spread across all the regions of Russia and neighbouring republics. This is also seen in Table 2-7, showing that the Ukrainians out-migrated from Donetsk-Dnieper and South West *raions* of Ukrainian SSR and in-migrated to all other regions, except for Ural, Transcaucasia, Kazakhstan and Moldovan *raions*. Two other major titular ethnic groups, Armenians and Kazakhs, show distinctive migration patterns during this period. It is observed that both ethnic groups have gained population through the channel of net migration in most of the regions of the USSR except in their titular republics. The figures in Table 2-7 show that the Armenians and Kazakhs show negative net migration in Armenia[172] and Kazakhstan, whereas it is positive in all other regions. Tatars tend to move towards the northern and central regions of the RSFSR, showing a similar trend to that of all nationalities.

The second map of Figure 2-4 shows the net migration rate of each titular nationality in its home republic, including ASSRs, e.g. Latvians in Latvia or Yakuts in Yakut ASSR. It seems that many titular nationalities left their home territories as more red regions are observed, especially in densely populated western parts. It can be inferred that the titular groups were

[172] In the table, net out-migration of Armenians is observed in Transcaucasia *raion,* where Armenia was located.

leaving for other parts of the USSR where their co-ethnics are relatively scarce and thus ethnic mixing was happening. This trend will be shown completely reversed in the post-collapse map.

By the method proposed, the net migration of non-titular ethnic minorities, such as Jews, can be calculated as well. The map for the Jews, as expected, is covered in red except for the Tyumen *oblast* of West Siberia. Tyumen oblast has been famous for oil and gas production and had the highest income level among the Soviet oblasts, attracting the members of almost all ethnic groups, even including fleeing Jews, in the 80s. To what extent this economic factor was significant in shaping the migration patterns will be discussed in detail in the next chapter.

After collapse, 1989-2000[173]

The table corresponding to Table 2-6 is not presented for the 90s because the interval between two censuses conducted in each country was different[174] and thus it is not meaningful to compare total net migration of ethnic groups during the intercensal period in the 1990s[175]. Instead, I calculate the number of annual average net migration and the annual rates per 1000, and Table 2-8 and Figure 2-5 summarise the movement of major ethnic groups after the dissolution at *raion*- and *oblast*-levels, respectively.

The net migration patterns dramatically changed in the 1990s. The biggest difference is the increase of net out-migration regions, partly explained by the fact that the restrictions on the international emigration were lifted in the late 80s. Also, the absolute number of net migration, which reflects the extent of mobility, became much larger compared to pre-dissolution counterparts. The map for all nationalities shows that the intensifying net-out migration from Central Asia and the new trend of the population losing in Siberia. The European part of the Russian Federation appears to gain population through net migration during this period.

[173] Even though post-dissolution data overlaps about two years of the Soviet period (89 and 90), it does not affect the discussion as the restrictions on migration began to be abolished from the late 80s.
[174] For example, the intersensal period is 16 years in Moldova but only 6 years in Turkmenistan. See Table 2-1.
[175] However, Heleniak (2003) does have a similar table, making an assumption on the ethnic distribution in 1999 and natural increase of each ethnic group. Heleniak, 'End of Empire (2003)', p141, Table 8.5

Table 2-8. Net migration of the ethnic groups, Annual average and per 1000, 1989-2000

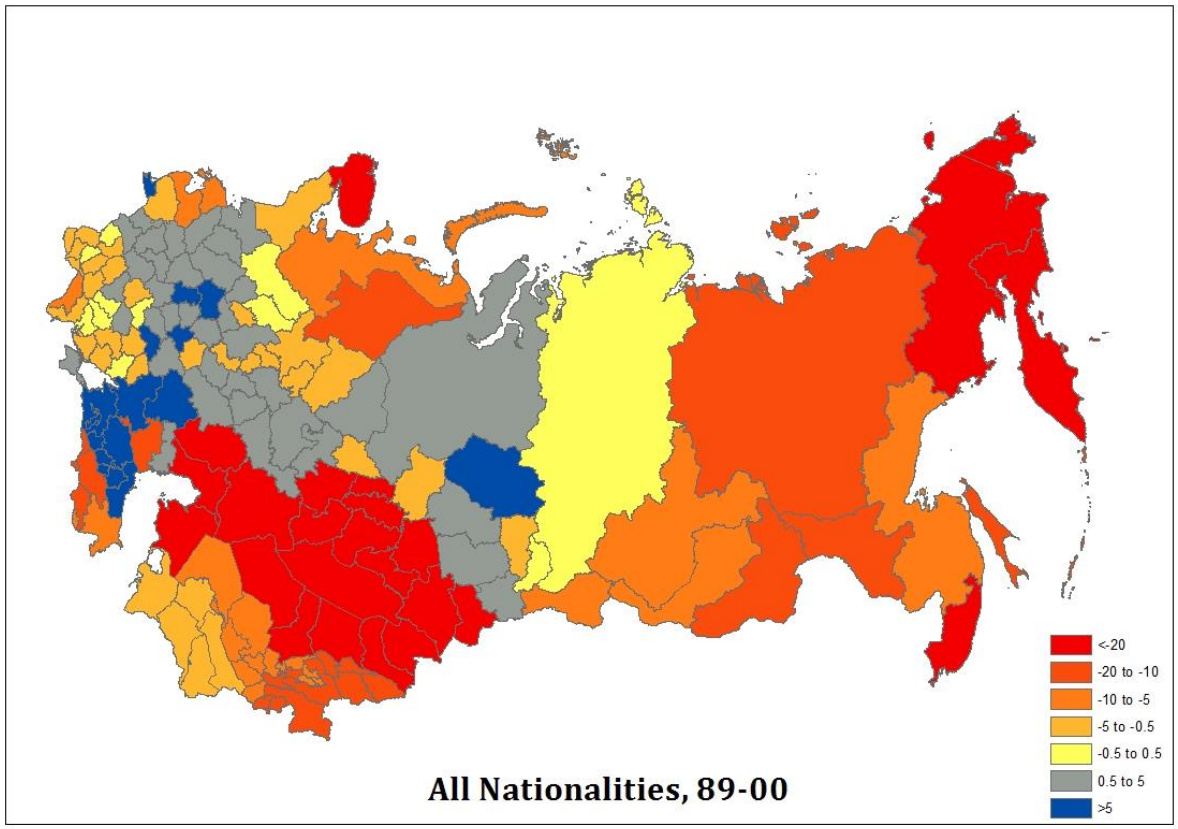
Economic Region	All Nationalities	Russians	Ukrainians	Armenians	Kazakhs	Tatars	Jews	Germans
North	-53,996 (-9.5)	-32,210 (-6.8)	-9,825 (-40.2)	220 (28.7)	-212 (-68.7)	-1,285 (-32.5)	-232 (-52.0)	-333 (-20.9)
North-West	26,474 (3.3)	7,600 (1.1)	-4,582 (-24.0)	1,242 (56.6)	-276 (-46.4)	-171 (-3.3)	-4,871 (-64.4)	117 (15.6)
Central	240,643 (7.9)	164,801 (5.9)	-2,978 (-4.7)	12,613 (89.2)	-277 (-17.3)	2,238 (8.3)	-7,965 (-49.5)	401 (16.3)
Volga-Vyatka	1,396 (0.2)	6,502 (1.1)	-1,173 (-19.0)	1,009 (96.7)	-99 (-50.4)	-355 (-1.6)	-516 (-48.7)	100 (25.5)
Central Black Earth	35,198 (4.6)	33,886 (4.7)	-4,201 (-19.7)	2,122 (109.8)	-73 (-39.0)	450 (43.5)	-374 (-56.4)	307 (57.4)
Volga	60,820 (3.7)	40,714 (3.4)	-6,541 (-21.7)	5,609 (93.3)	1,514 (5.5)	18,457 (7.7)	-1,342 (-48.2)	-1,350 (-23.0)
North Caucasia	178,249 (10.0)	67,554 (5.9)	-11,235 (-27.6)	18,728 (40.0)	-160 (-17.8)	737 (10.8)	-1,545 (-62.8)	-1,967 (-37.7)
Ural	14,881 (0.7)	17,204 (1.2)	-9,094 (-24.1)	2,780 (87.1)	593 (3.3)	-15,432 (-8.2)	-1,528 (-49.0)	-4,238 (-35.1)
West Siberia	7,045 (0.5)	25,942 (2.0)	-11,896 (-23.4)	2,679 (80.7)	121 (0.9)	-1,186 (-3.0)	-881 (-51.7)	-10,100 (-29.0)
East-Siberia	-44,403 (-5.0)	-29,516 (-4.0)	-9,572 (-44.3)	1,098 (62.0)	-372 (-47.9)	-1,773 (-16.6)	-361 (-45.7)	-809 (-13.3)
Far East	-98,778 (-13.5)	-62,574 (-10.6)	-26,096 (-57.8)	515 (35.4)	-478 (-58.3)	-2,786 (-38.6)	-1,011 (-71.3)	-475 (-28.5)
Donetsk-Dnieper[1)]	-12,205 (-0.6)	-92,346 (-15.7)	91,846 (6.5)	2,254 (50.4)	-383 (-47.8)	-844 (-16.9)	-8,287 (-79.6)	-281 (-15.9)
South-West[1)]	-23,726 (-1.1)	-49,236 (-35.6)	38,622 (2.0)	421 (30.7)	-383 (-47.8)	-305 (-31.2)	-13,341 (-106.0)	60 (6.3)
South[1)]	1,437 (0.2)	-31,251 (-12.1)	22,451 (5.5)	1,256 (67.3)	-383 (-47.8)	390 (19.0)	-5,936 (-91.3)	-14 (-1.7)
West (Baltic)	-30,648 (-3.6)	-18,828 (-8.4)	-6,190 (-30.2)	N/A	N/A	4,423 (96.4)	-1,771 (-57.9)	508 (36.9)
Transcaucasia	-168,670 (-10.8)	-51,689 (-102.5)	-4,762 (-72.8)	-70,543 (-19.0)	N/A	N/A	N/A	N/A
Central Asia	-303,242 (-8.4)	-143,849 (-52.7)	-18,444 (-70.9)	-2,800 (-32.9)	-13,580 (-13.2)	-29,718 (-55.3)	N/A	-16,944 (-159.8)
Kazakhstan	-322,057 (-20.5)	-208,906 (-39.0)	-36,078 (-50.0)	-557 (-32.9)	129,990 (17.9)	-9,467 (-32.8)	-1,177 (-93.3)	-67,850 (-103.5)
Belarus	11,163 (1.1)	-14,009 (-11.3)	-4,451 (-16.9)	N/A	N/A	-229 (-20.3)	-7,903 (-113.1)	N/A
Moldova	-34,307 (-8.3)	-12,107 (-26.0)	-10,620 (-20.4)	N/A	N/A	N/A	-3,858 (-109.4)	N/A

Note: per 1,000 rates are in parenthesis. See text for the sources and estimation method.

1) The net migration of the whole Ukraine replaces that of these three *raions* when regional level data are incomplete.

2) The *raion* level net migration data are not available for some ethnic groups mainly due to their negligible size.

Figure 2-5. Regional net migration rates of major ethnic groups, 1989-2000



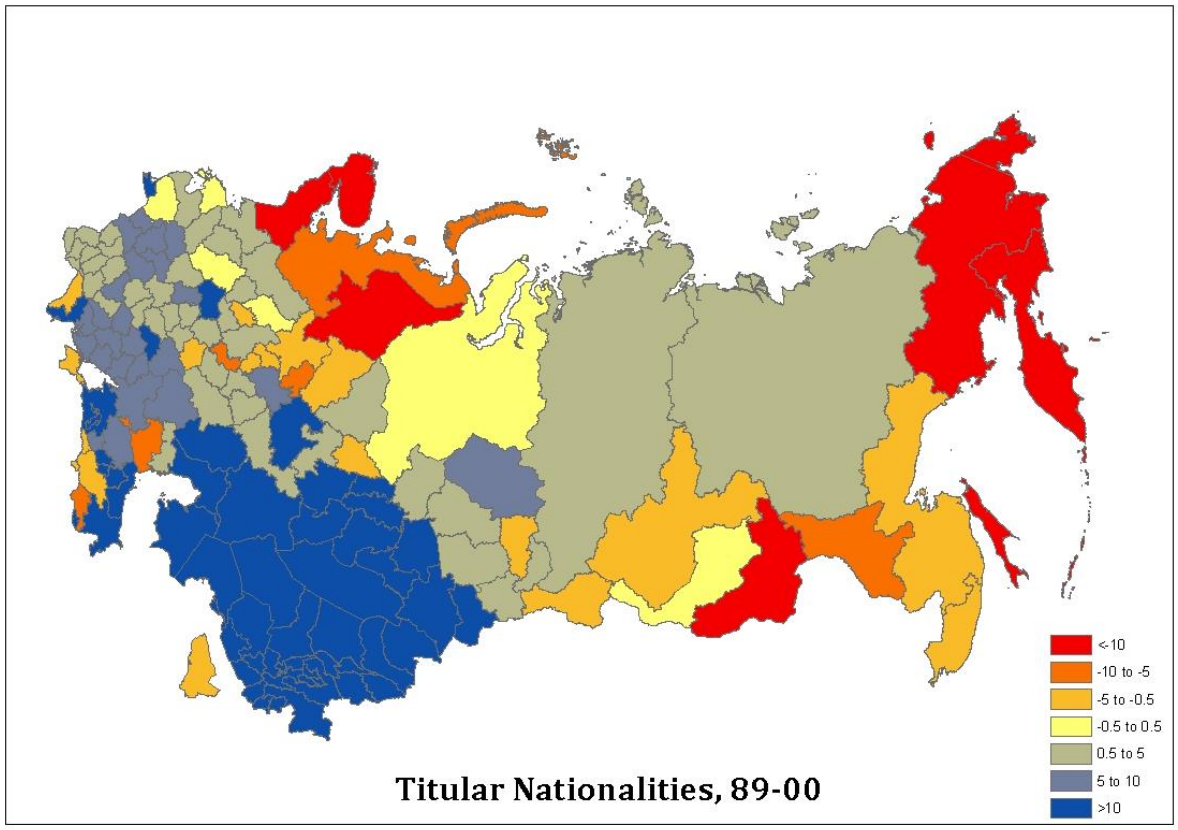
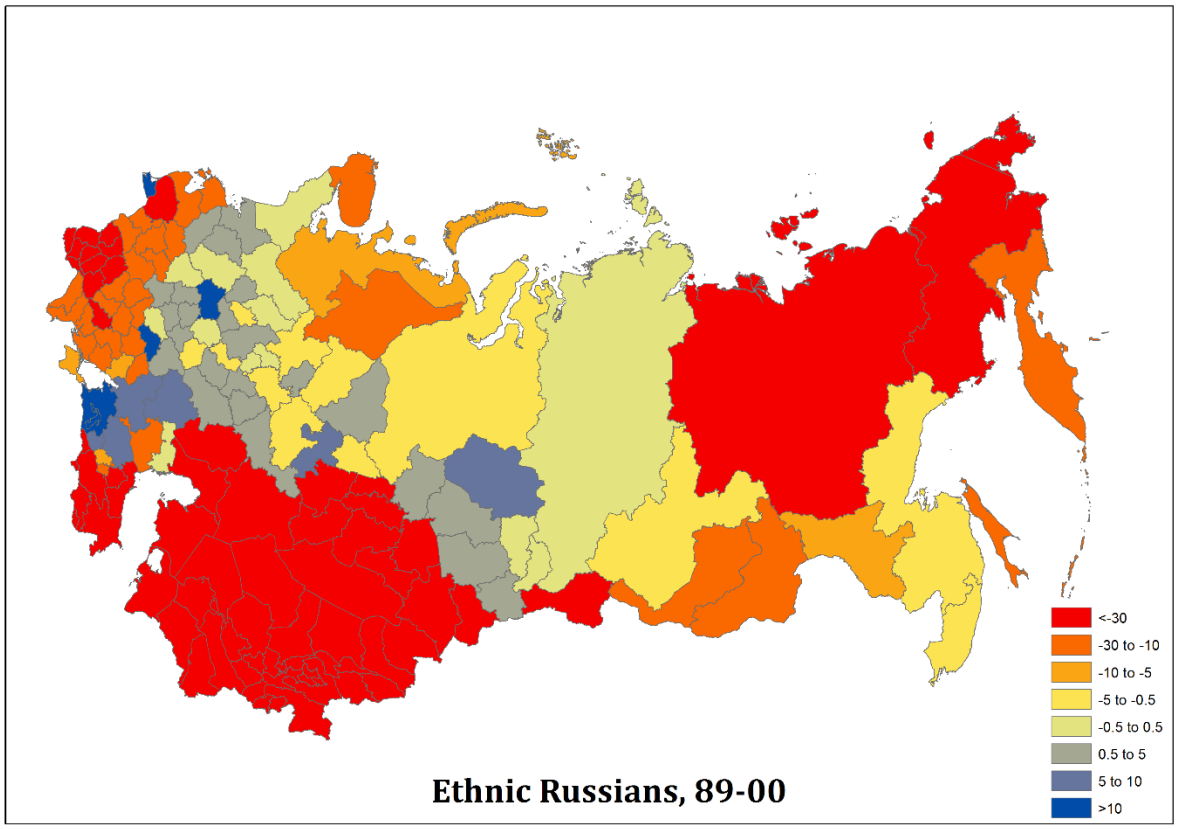


Figure 2-5. Regional net migration rates of major ethnic groups, 1989-2000 (Cont.)



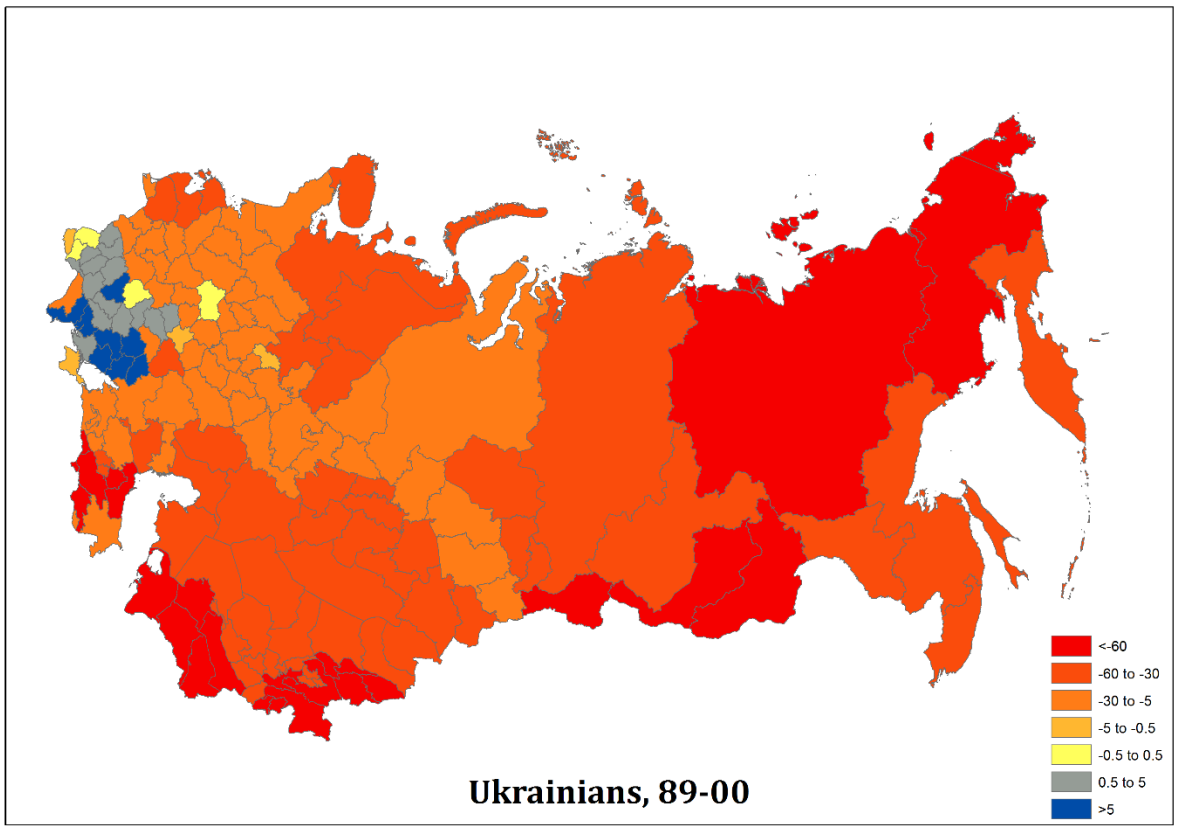


Figure 2-5. Regional net migration rates of major ethnic groups, 1989-2000 (Cont.)

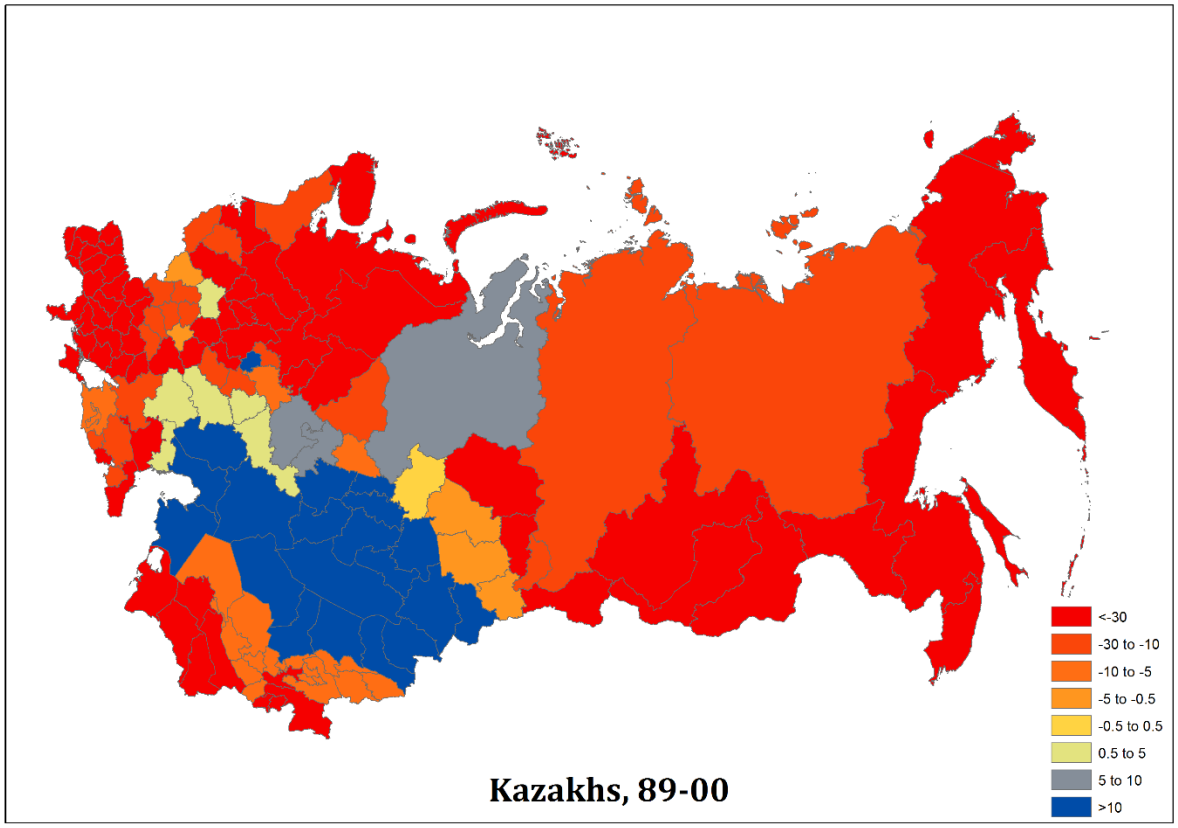
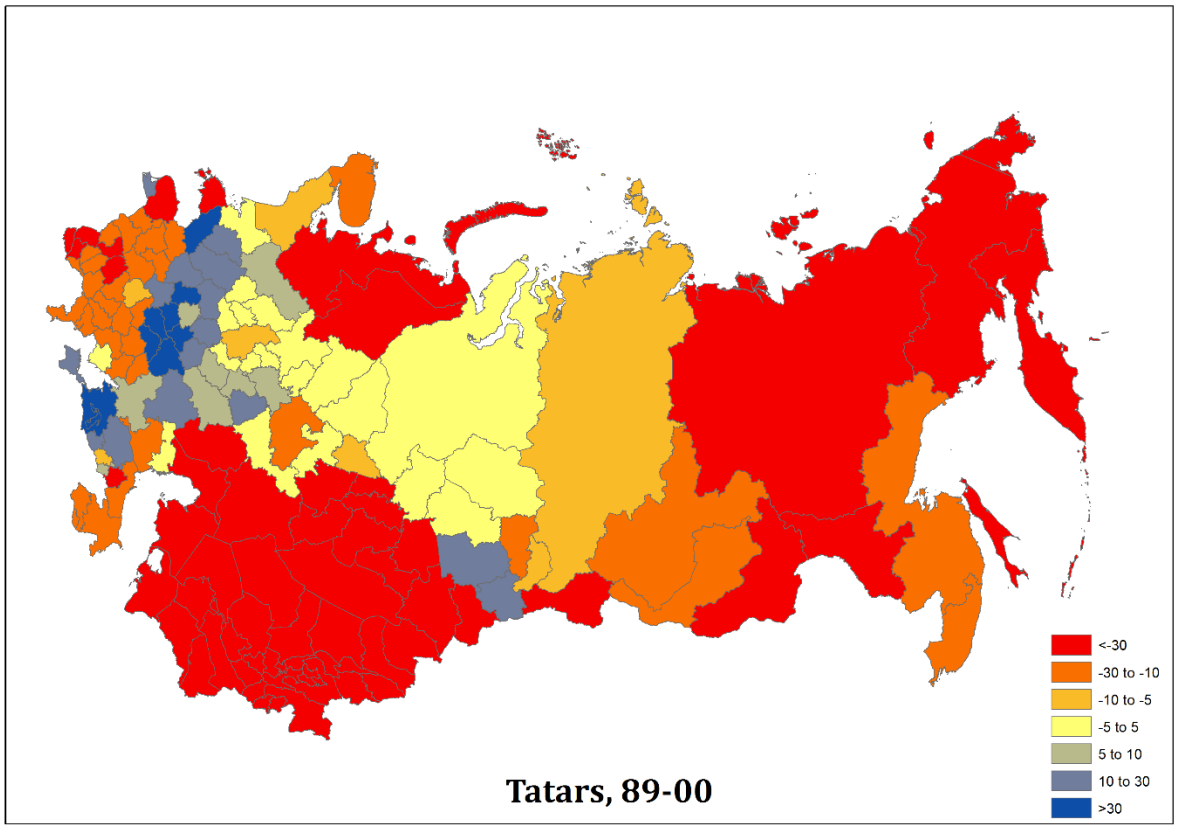
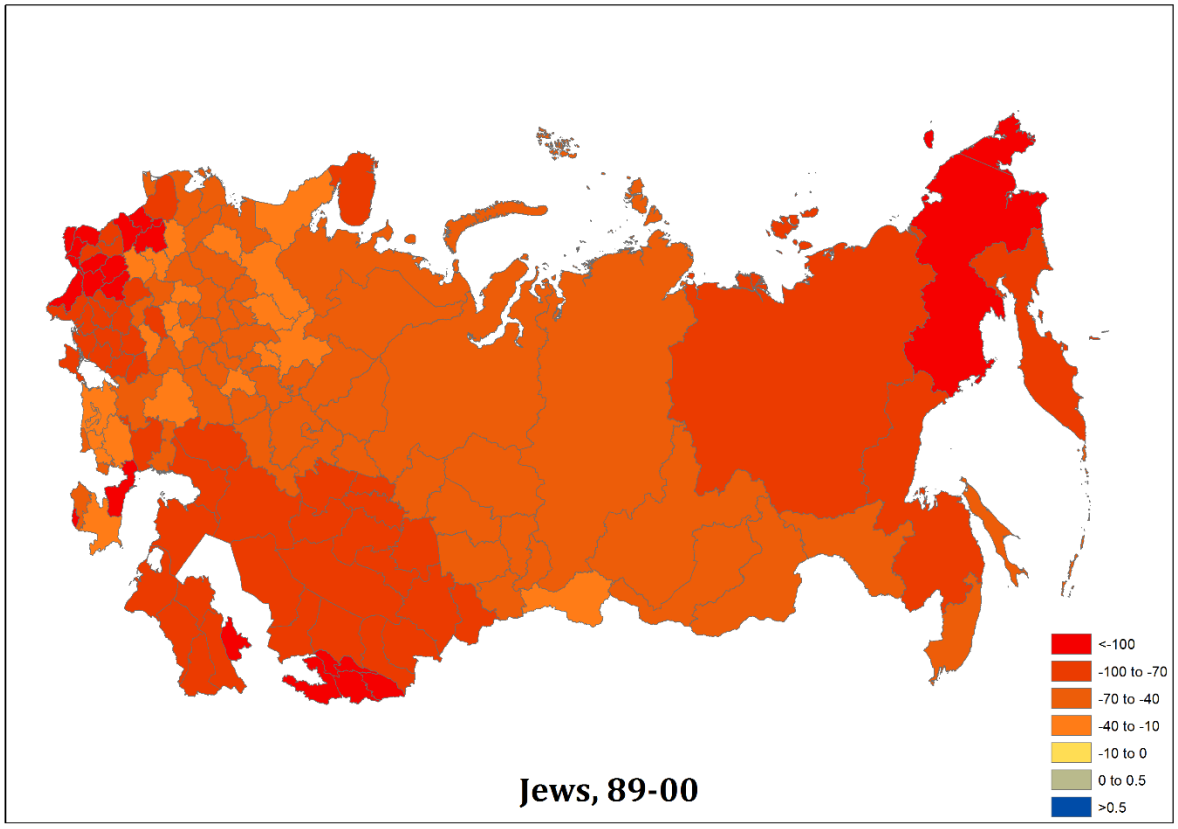


Figure 2-5. Regional net migration rates of major ethnic groups, 1989-2000 (Cont.)





Note: Each map has a different legend.

Looking at the net migration of ethnic Russians, the fleeing from the southern part of the former USSR territories had continued in an enlarged extent. The out-migration of ethnic Russians was most intense in the war-torn regions, namely Azerbaijan, Georgia, Moldova and Tajikistan where there were ethnic conflicts and civil wars in the late 80s and early 90s. The net out-migration rate of ethnic Russians in Transcaucasia skyrocketed from 24.6 per 1000 in the 80s to 102.5 per 1000 in the 90s, and those in Central Asia and Kazakhstan also marked as high as 70.9 and 50 per 1000, respectively[176].

What is different from the 80s is that the ethnic Russians have left not only the non-Russian southern *raion*s but also all other non-titular FSU states. Their net migration rates in the Ukraine, Belarus, and Baltics were all negative. They appear to have gone to Central and North Caucasus *raions* in Russian Federation, confirming the conclusion of the previous literature once again. The accelerated repatriation of ethnic Russians from not only Transcaucasia and Central Asia but also from the Slavic and Baltic regions was observed in the publications of the Rosstat[177].

Another striking feature of the post-dissolution migration pattern is the migration of other titular nationalities to their own national territories. The map of net migration for the titular nationalities (the second one in Figure 2-5) reveals that most of the ethnic groups have positive net migration rates in their titular nations, with showing many blue regions. The pattern of return migration is vividly observed in the maps of two major titular nationalities, Ukrainians and Kazakhs, where the net migration is positive only in their homes and negative in all other regions. Ukrainian and Kazak cases are especially interesting in that the post-Soviet trend had shown dramatic reverse compared to that of the late-Soviet period. This reverse of migration patterns shed light on the motivation of migrants, in that Ukrainians and Kazakhs

[176] Compared to "the age of mass migration" in the 19th century, these rates are remarkable. The highest emigration rates per 1000 population were not higher than 20, even for actively emigration Irish or Italians (Hatton and Williamson, *Age of mass migration*, p.33)

[177] Codagnone, 'New Migration', p.49; Heleniak, 'End of Empire (2003)', pp. 137-139

decided to leave relatively affluent Russia and Baltic countries for less developed Ukraine and Kazakhstan. Though the motivation of migrants is not the direct concern of this chapter, we can deduce that the ethnic factor must have worked in the post-dissolution cases just by looking at the migration pattern.

Finally, the migration of ethnic minorities also shows interesting patterns in the 90s. The exodus of Jews is observed in both Table 2-8 and Figure 2-5, with amplified intensity. The number of Jews declined in all the regions, and the net out-migration rates were as high as 50 to 100 per 1000. Germans, who had been relatively inert in emigrating during the late-Soviet period, now seem to begin their rush abroad, especially from Central Asia. Table 2-8 suggests that around 90,000 Germans have left Central Asian region (including Kazakhstan) over the intercensal period of the 90s, marking the net out-migration rates of all-time high 159.8 (Central Asian *raion*) and 103.5 (Kazakhstan). Many of the ethnic Germans who have left the FSU states are thought to have returned to Germany under the framework of *Aussiedler*[178] policy[179].

Compatibility checks

In the last sub-section, I crosschecked the results from my own estimation with other relevant available sources. Even though mine was the first attempt to estimate regional level migration by ethnicity, there have been aggregate migration data for the late-Soviet period, which were recorded by the Soviet statistical agencies and compiled by CISstat[180] as summarised in Table 2-9.

[178] German word indicating resettler or immigrant. Munz 'Ethnic Germans in Central and Eastern Europe and their return to Germany', in Munz and Ohliger, *Diasporas* (Portland, 2003), p.263

[179] De Tinguy, A., 'Ethnic Migrations of the 1990s from and to the Successor States of the Former Soviet Union: 'Repatriation'or Privileged Migration', in Munz and Ohliger, *Diasporas* (Portland, 2003), p.113

[180] CISstat (2006), 15 years of the Commonwealth of Independent States ,1991-2005: Statistical abstract, Moscow: Interstate statistical committee of the Commonwealth of Independent States

Table 2- 9 . Net migration in the Soviet republic and FSU countries, 1981-2005

	Net migration (1000 persons)			
	1981 – 1985	1986 – 1990	1991 – 1995	1996-2000[1)]
Slavic				
Russia	848	737	2,075	1,399
Ukraine	25	-157	117	-565
Belarus	6	-93	23	-3
Transcaucasia				
Azerbaijan	-113	-205	-87	2
Georgia	-28	-86	-552	-294
Armenia	-46	-77	-507	-115
Central Asia				
Kazakhstan	-419	-791	-1,515	-1,180
Uzbekistan	-213	-669	-454	-274
Tajikistan	-36	-132	-430	-178
Kyrgyzstan	-56	-184	-259	-17
Turkmenistan	-35	19	213	-16
Baltics				
Latvia	48	2	-136	-42
Lithuania	44	5	-116	-124
Estonia	27	-16	-107	4
Moldova	-14	-100	-115	-40
Total	37	-1,746	-1,851	-1,442

1) 1996-1999 for Turkmenistan
Source: CISstat (2006)

For example, one can compare the net migration of all nationalities in Tables 2-7 and 2-8 with the sum of first two columns and the sum of second two columns, respectively. The estimated ten-year total net migration of all nationalities in Russia between 1979-89 is 1,550,606, which are comparable to the net migration between 1981-1990 (1,585,000) in Table 2-9. For other republics, the extent of differences varies but the sign and magnitude of net migration are similar between the estimated and recorded migration. The same can be applied to post-collapse period. Estimated net migration in Russia between 1989-2000 is 4,904,887, whereas the administrative record shows the net migration of 3,474,000. Other republics also have similar net migration in both methods.

Similar sign and magnitude of net migration between the estimation and administrative records for all nationalities are not surprising in that the variation by ethnicity is not considered here. Assumptions were mostly applied to the natural increase of different ethnic groups, the margin of errors might be bigger in the net migration at an ethnic level. There are no comparable data of net migration by ethnicity for pre-collapse period, but *Russian demographic yearbooks*[181] have some data regarding the migration of different ethnic groups between Russia and other countries after the collapse. Between 1989 and 2000, net migration Russians in Russia was 3,045,818, and this figure is close to my estimation of 3,222,071. However, it is hard to find the similarity between this record and my estimates for other republics. For example, Ukrainians and Belarusians were estimated to have negative net migration in my estimation but Demographic yearbook shows the opposite. For other groups, the magnitude or sign of net migration do not match very well between these two methods.

However, the discrepancies found between the estimation and administrative records do not weaken the results of my methods too much, as my data can go down to an *oblast* level, where the margins of error should be smaller than the *raion* or republic level data. If there is an error occurred in one direction, the aggregate level data should be more inaccurate compared to the regional level data. Therefore, even if the sum of all regional level data are found to be inconsistent with other data sources, it does not necessarily discredit the usefulness of lower level data. This can be the case in my dataset.

[181] Rosstat (1993-2010) *Demograficheskiy yezhegodnik Rossii: Statisticheskiy sbornik* (Demographic Yearbook of Russia: Statistical Handbook). Moscow: *Goskomstat Rossii*

V. Conclusion

This chapter seeks to review the existing method and sources for measuring/estimating the migration flows during the transition period, and to construct the database containing information about the regional migration at the ethnic level. Section III, in particular, makes a novel contribution to the literature as it has never been scrutinised systematically in the previous works. It constructed a new dataset showing the regional migration movements of major ethnic groups during the late-Soviet period and improved upon the only relevant study of Heleniak as to the post-Soviet period.

The results of this chapter turn out to be well in line with the observations of the previous literature. To be specific, the return of ethnic Russians to Russian Federation during the transition period has been claimed to be one of the major phenomena in the literature and is confirmed in my dataset. It is also confirmed that some ethnic minorities, notably Jews, began to leave the USSR even before its dissolution. In addition, there were some original findings in this chapter, which show that the non-Russian titular ethnic groups, for example, Ukrainians, Kazakhs, and many others, also have shown strong tendency to return to their own titular states. This chapter was able to suggest specific figures of the level and rates of net migration at the regional and ethnic level, and some of the ethnic groups show net migration rates which are far higher than those shown in Europe during the "age of mass migration".

The migration trends revealed in my dataset shed light on the motivation of the migrants during the transition period. Firstly, it can be inferred that ethnicity played a role in population distribution. The changing directions of migration from pre- to post-collapse periods indicate that the trends shifted from ethnic mixing to ethnic unmixing. Migrants are likely to have considered the share of their own ethnic groups in the destinations when deciding to move, especially after the dissolution. Secondly, the fact that the regions with the highest wages and living conditions, e.g. Tyumen oblast, tend to have positive net migration might suggest that economic conditions also had some influence on migration patterns. This might confirm that

income differentials, which have been the conventional determinants of migration, also worked to explain Soviet and post-Soviet migration decisions and destination choice. Lastly, the regions suffering from civil wars and political conflicts show the highest level of net out-migration. It is not too bold to argue that migrants wanted to avoid conflict and decided to leave these places.

These findings, of course, need to be tested in order to be accepted as a solid conclusion. This task will be continued in the next chapter, analysing the determinants of regional net migration of ethnic groups, using econometric specifications. Beyond this, the newly constructed dataset as to the migration trends for the late- and post-Soviet periods is expected to be used for various quantitative analyses in the future.

Chapter 3. Ethnicity as a determinant of migration: Soviet and Post-Soviet case

Abstract

This chapter aims to analyse the determinants of regional net migration in the late- and post-Soviet space from 1979 to 2000. The conventional wisdom in the literature is that migration patterns are determined by different economic conditions between the source and destination. During the post-Soviet transition period, however, ethnicity also played an important role in shaping regional migration patterns. Following the lift of migration restrictions after the collapse, it is evident that people migrated to the regions where their co-ethnics were prevalent to pursue utility maximisation and avoid discrimination. The impact of ethnic affinity remains robust after controlling for the economic variables. In the late-Soviet period, the effect of ethnicity was exactly the opposite and people moved to where their co-ethnics were rare. This is due to the lack of freedom in migration decision and "ethnic mixing" policies of the Soviet authority.

I. Introduction

The determinants of migration have been a popular subject in the literature which aims to answer the question as to which of the different characteristics between sending and receiving regions drive people to move from one to another. Among the most prominent explanations are the different economic conditions. People decide to move when the potential destinations can offer better economic opportunities, notably higher wages, higher chances of employment, and cheaper living costs than where they currently live. Apparently, however, money is not the only matter of concern for potential migrants. I will argue that ethnic identity is another important factor affecting migration decisions and destination choice, though it has not been paid explicit attention in the literature until recently.

While ethnic affinity had been considered important only in conjunction with the broader concept of the network effects, it has not been long since the attempts to include ethnicity into a discussion on the motivation and assimilation of migrants were made by

scholars[182]. It has been argued that identity and economic behaviours are closely related[183], and thus potential migrants are highly likely to be influenced by the presence of the community which their co-ethnics have built in the possible destinations. This view has been supported in some articles regarding the internal migration within ethnically diversified countries, notably the US[184]. In addition to the direct impact, the governments also have incentives to discourage or encourage the migrants who have a certain ethnicity since the ethnic composition in a country also has a significant influence on its economic development as surveyed in Alesina and La Ferrara (2005)[185].

The migration patterns in the Soviet and post-Soviet space were evidently affected by nationality policies as discussed in the previous chapters. However, ethnicity has rarely been at the centre of analyses, even though the determinants of Soviet and post-Soviet migration were investigated by many scholars. In particular, most of the studies adopting a quantitative approach focus on the interregional migration within the Russian Federation and none of these have paid attention to the ethnic aspect, except for one paper written by Locher[186]. Quantitative research on inter-regional migration in the Russian Federation includes Brown (1997), Andrienko and Guriev (2004), Gerber (2006), and Guriev and Vakulenko (2015). While these managed to quantify the effects of the labour market and housing conditions on migration flows during the post-Soviet transition period, their focus was only on Russia. Migration across the whole territory of the USSR and FSU states is particularly interesting as it involves various ethnic groups, each of which has shown a unique migration pattern.

The only attempt to analyse the motivation of ethnic migration throughout the FSU states during the 1990s was Locher (2002). She used Heleniak's dataset on net migration of ethnic groups between 1989 and 1999 to filter out its main determinants. Besides economic conditions, she also includes "ethnic sorting" as an explanatory variable to see if migrants tend to move to the areas in which the proportion of their own ethnic group is high when analysing

[182] Constant and Zimmerman, *International Handbook*, p.259
[183] Akerlof and Kranton, 'Economics and identity (2000)'; Akerlof and Kranton, 'Identity (2005)'
[184] Kritz and Nogle 1994; Gurak and Kritz 2000; Frey and Liaw 2005; and Kritz et al. 2011
[185] Alesina and La Ferrara, 'Ethnic diversity'
[186] Locher, 'Migration'

80 ethnic migration movements occurred between 1989 and 99. Locher did find the evidence of significant influence for ethnic sorting as well as for economic factors on emigration and immigration of ethnic groups.

However, this paper has limitations in that its sample is small and incomplete. Her interpretation is weakened because her data is limited to the country level and is unable to be decomposed into in- and out-migration. Only regional level data can alleviate this issue in the absence of interregional flows. Also, since the migration patterns in the Central, Northern and Siberian regions of Russia have been completely different from one another, it is crucial to see the regional variations. These problems can be addressed in my dataset constructed at the regional level in the previous chapter.

The previous research has room for improvement in three major areas. First, none of the articles has paid attention to the pre-dissolution period. This is because there has been no consistent dataset spanning both pre- and post-dissolution periods. The literature dealing with the late-Soviet period tends to rely on incomplete datasets and therefore no rigorous econometric analysis could be conducted on migration in this period. Second, the analyses on regional net migration patterns tend to concentrate on Russian Federation, again mainly due to data availability. The inter-republic (or inter-FSU state) migration accounts for a high proportion in the Soviet and post-Soviet migration movements, but this is generally disregarded in the previous literature, at least as far as quantitative analysis is concerned. Third, the only article extending its scope to the ethnic migration, Locher (2002), also does not have complete dataset especially in terms of a small sample and unavailability of regional level data. The ethnic aspect, which may have many interesting implications to the present migration discussion, could not be fully exploited in her works.

The dataset constructed in the previous chapter, which consists of regional and ethnic level data spanning the late- and post-Soviet periods, enables to overcome all the above-mentioned limitations. The econometric analysis with the better sample of ethnic migration data is revealing the decisive role of ethnic identity in the direction of ethnic unmixing in the

post-Soviet period. That is, the migrants are likely to move to the regions where their co-ethnics were prevalent and/or likely to stay if they are already in such regions. The results also report significant effects of economic variables on migration decision as predicted in previous works. These seem robust when different combinations of control variables are added. On the other hand, the pre-collapse migration shows a stark contrast to its post-Soviet counterpart. Ethnicity again had a significant effect but this time in an opposite direction of ethnic mixing, that increases the ethnic diversity of a region.

This chapter will proceed as follows. Section II discusses the hypotheses as to the two major determinants of migration, namely economic conditions and ethnic affinity, discussing whether these hypotheses can hold in the Soviet and post-Soviet contexts. I will briefly explain the data and method I use for the quantitative analysis in Section III, and then provide the main results for the post-collapse period in Section IV. Section V will deal with pre-collapse specifications separately, and Section VI examines whether recent migrants were more likely to return in the post-Soviet period. I conclude in Section VII.

II. Hypothesis

There are two hypotheses which I would like to test in this chapter. First, the difference in the conventional economic factors between the source and destination determine the size of migration flows. Second, ethnic factors are as important as the economic factors because the ethnic affinity also exerts a significant influence on potential migrants' decision making and the migration policy of the receiving country.

The first hypothesis is well supported by theory and evidence. The importance of expected lifetime income in the destination in determining migration decision has been emphasised in many studies as reviewed in the introductory chapter[187]. Some attempt to prove the influence of economic variables on migration in the post-Soviet context as well. Brown (1997) was the first to attempt to quantify the effects of the labour market and housing conditions on migration flows in the early period of transition, though his results were somewhat inconclusive[188]. Andrienko and Guriev (2004) find the results expected by neo-classical migration theory, by using enhanced region-to-region flow data from 1992 to 1999 and direct measures of economic opportunity[189]. Gerber (2006) and Guriev and Vakulenko (2015) drew a similar conclusion with different method and datasets[190].

It was also seen in the previous chapter that the regions with thriving industry and high wages, e.g. Tyumen *oblast* in West Siberia, tend to have positive net migration, suggesting economic conditions also had some influence. This seems to be the case for both late- and post-Soviet periods and will be tested formally in the next section.

The second hypothesis is yet to be fully discussed in the literature, though some authors have already started to pay attention to the relationship between ethnicity and migrants' motivation and assimilation. Focusing on the determinants of migration, I expect that ethnicity,

[187] See Constant and Zimmerman, *International Handbook*, for survey.
[188] Brown, 'Economic determinants'
[189] Andrienko and Guriev, 'Determinants'
[190] Gerber, 'Regional Economic performance'; Guriev and Vakulenko, 'Breaking out'

along with economic factors, plays a significant role in migrants' decision-making process. I will argue that individuals have an incentive to live in the region or country where the presence of their co-ethnics is prevalent, and the governments also benefit from the more ethnically homogenous country.

The starting point is the influence of identity on a person's economic behaviours. Identity, defined as a person's sense of self, can be an important determinant of labour market performance and earnings[191]. Akerlof and Kranton (2000, 2005) have argued that a rational individual would seek to achieve their ideal self and may sacrifice monetary compensation for this sake. Ethnic identity is especially important in the context of migration since it usually comes up to the surface when a person moves to a society dominated by other ethnic groups. It is possible, therefore, that a potential migrant wants to choose destinations where he or she can find their co-ethnics, regardless of economic gains.

As I reviewed in the first chapter, there is also a stream of literature maintaining that ethnic identity of immigrants is closely correlated with labour market outcomes in the destination (Constant and Zimmermann 2008, 2013; Bisin et al. 2011; Hatton and Leigh 2011; Patacchini and Zenou 2012). These studies support the idea that the ethnic identity is one of the most important factors affecting migrants' economic performance and therefore will affect the decision making and destination selection process of potential migrants in the first place. Also, some authors explore the direct role of ethnicity in the migration decision itself. Analysing the internal migration of the US ethnic minorities, Kritz and Nogle (1994), Gurak and Kritz (2000), and Frey and Liaw (2005) conclude that ethnic sorting, i.e. the concentration of an ethnic group in a region, occurs due to the factors like kinship ties, social support network, and access to informal employment opportunities[192].

[191] Constant and Zimmermann, *International Handbook*, p.17
[192] See 'Previous literature' section of Chapter 1 for details

I have so far discussed the potential effects of ethnicity on the individual level migration, but the ethnic sorting or unsorting through migration is also a matter of serious concern to policymakers. The literature studying the relationship between ethnic diversity and economic performance concludes that ethnically heterogeneous society has been disadvantaged in terms of economic growth and social stability. The negative impact, however, is alleviated in an advanced economy where the complementarities of different skills can be realised more easily[193].

There are several channels through which high diversity hampers economic development. First, an ethnically fragmented society may have counterproductive institutions due to the conflict of preferences and rent-seeking behaviour by different ethnic groups which lead to the diversion of resources from productive investment[194]. Second, the fragmented preferences will make it hard to reach agreement about the provision of public goods such as education and infrastructure, which again lower the level of output[195]. Third, an ethnically diversified, or polarised, society may be prone to ethnic conflicts as it is more difficult to coordinate the distribution of scarce resources[196]. Related to this, the fiscal burden on the government to deal with the conflicts should be high and therefore affect its economic performance.

For these reasons, the government has an incentive to strengthen ethnic homogeneity of the country, though how the policymakers execute this idea is largely in question. Rather, any efforts to discriminate against ethnic minorities are condemned as politically incorrect. However, it is true that the promotion of nationalist politicians still appeals to many, and a set of policies favouring the native ethnicity only are popular among some voters. This trend is especially salient in the countries which are at the initial stage of nation-building or experiencing economic hardships. The discrimination against ethnic minorities in individual

[193] Alesina and La Ferrara, 'Ethnic diversity, p.763
[194] Montalvo and Reynal-Querol, 'Ethnic diversity', p.308
[195] Easterly and Levine, 'Africa's tragedy', p.1216
[196] Vanhanen, 'Domestic ethnic conflict', p.58

and collective levels has deterred potential immigrants from coming or driven the non-native residents out, which result in ethnic sorting.

Others argue that the diversity can have a positive effect on the economic outcomes. It is argued that better political institutions can make the most of complementarities arising from different skills, experiences and ideas by coordinating communication[197]. In line with this, Alesina and La Farrera provided evidence that the economic performance is not hampered by ethnic fractionalisation in high-income countries[198]. This claim has been supported by some recent empirical works such as Bellini et al. (2013), Alesina et al. (2016), Bove and Elia (2017)[199]. Although evidence for the adverse effect of diversity still dominates the literature, it should be considered that governments may want to encourage the heterogenization of the society to gain from it.

In this sense, it is worth noting that ethnic sorting is not always occurring. "Ethnic mixing", as opposed to ethnic sorting or ethnic "unmixing", can happen in the course of attracting foreigners into a society as a policy objective, e.g. in the countries who suffer from a labour shortage[200]. In this case, the role of ethnicity in determining migration will be different from what we discussed previously, as people will move to the places which are dominated by other ethnic groups. The late-Soviet migration can be a good example of ethnic mixing. I will show in Section V that ethnicity had been working in the opposite direction before the Soviet borders were open and restrictions on migration were lifted, as a special case observed in the society heavily controlling labour distribution.

[197] Lazear, 'Diversity and immigration', p.119
[198] Alesina and La Farrera, 'Ethnic diversity (2005)', p.770
[199] See Chapter 1 for literature review.
[200] And this ethnic mixing has been accepted as the general consequence of more migration. Brubaker, 'Ethnic unmixing (1998)', p.1047

III. Data and Method

I will do the main regressions on the post-collapse sample (1989-2000[201]), though my dataset span both late- and post-Soviet periods. Since the two periods show a stark contrast in terms of migration patterns and economic conditions, the pooled estimators do not give meaningful interpretations. Beyond the significant shifts in the political and economic regimes in the independent FSU states, the abolition of internal passports and emigration restrictions brought a huge difference to the motivation of potential migrants and actual migration decisions. In addition, it is possible to gather more complete regional data of explanatory variables for the latter period[202]. Therefore, I will begin with regressions on post-Soviet sample as a benchmark in Section IV, then will see if the pre-collapse counterpart shows any differences in Section V. When possible, all the explanatory variables on the right-hand side are included in the specifications of both periods for comparison even though some of these do not have significance in one of two periods.

I select eight ethnic groups to include in the specifications[203]. The criteria for selection are the size of population, distribution across the whole USSR and data availability, and the potential selection bias will be corrected later. I gathered the dataset regarding the share of each ethnic group and the indices for economic performance in different regions[204] so that I can compare their relative impacts on the net migration patterns. I begin with a simple OLS estimation in a reduced form specification, summarised as follows:

$$(M/P)_{r,t} = a_0 + a_1 EthnicShare_{r,t-1} + a_2 Wage_{r,\,t-1} + a_3 Employment_{r,t-1} + a_4 Conflict_r + (Dummy\_ethnicity)'\beta + X'_{r,t}\gamma + \varepsilon_{r,t}$$

[201] The post-collapse sample overlaps about three years of the Soviet period (89-91), it does not affect the discussion too much as the migration restrictions began to be lifted from the late 80s.
[202] Most of the regional level data is available only for 1985 and 90 as to the Soviet period.
[203] Eight groups are Russians, Ukrainians, Belarussians, Armenians, Kazakhs, Tatars, Jews, and Germans
[204] I mean *oblast*/*kray*/ASSR level administrative divisions by 'region' throughout this analysis.

I assumed that these regional net migration rates of an ethnic group $(M/P)_{r,t}$ are determined by two major factors, the share of the ethnic group in the region and the economic conditions. The dependent variable is the net migration per 1,000 persons which was constructed in the previous chapter. Though it would be ideal if there is in- and out-migration data separately, net migration is also acceptable in the regional level specification. The members of an ethnic group usually moved in the same direction in a region, i.e. if they tend to move out of a region, they do so continuously over a certain period. To calculate annual net migration rates, I divide ten-year total net migration by 10 and then by the average population and multiply 1000[205]. For ethnic shares, the regional ethnic composition can be obtained from the census data provided by the official statistics agencies of the USSR and other FSU states.

The economic conditions of a region can be measured by the level of wages and employment. I included the level and/or growth of wages to measure the compensation which the potential migrants may receive in the source and destination. As there was no unemployment data for the Soviet period – they claimed full employment all the time, – I used the share of employment relative to the regional population in the hope that it can serve as a proxy for regional economic activity. Unemployment rates were available for the post-Soviet period, so I use these data where applicable.

Food consumption was included as a supplement to wage data because Sovietologists often discredit the use of official wage data. In the Soviet period, official labour statistics were prepared by enterprises and organisations on the purpose of administrative reporting. As these enterprises and organisations were evaluated by the authority in terms of output and employment targets, they had a strong incentive to distort and falsify the data reported[206]. Also, due to multiple prices (e.g. black market), it is hard to produce real wages from the nominal wages. Real consumption is thought to be more accurate in measuring the actual living standard

[205] The number of years between two census points is not always 10 for all FSU countries in the post-Soviet period. For example, the first census in Russian Federation was 2002, so I first estimate 13-year total net migration and divide it by 13.

[206] Clarke, S., *The formation of a labour market in Russia*, (Moscow, 1999), p.273

of the Soviet people, so I approximate this real consumption by the level of food consumption per capita in a region.

All the economic variables for the Russian regions were obtained from the first publication of *Regiony Rossii* (2002), which has detailed regional statistics for two years (1985 and 1990) of the Soviet period and the annual data from 1995. For the regions in non-Russian union republics/FSU states, I gathered data from *Narodnoye khozyaystvo SSSR* (1991) and *Official Statistics of CIS states* (2008). As three Baltic States were not included in the CIS, I visited the websites of statistical agencies of each state and collected the relevant data.

Besides these main explanatory variables, dummies for each of the seven ethnicities are included to capture the ethnic-specific characters which might have influenced the migration decision. For example, some ethnic groups, such as Armenians showed a tendency to have high in-migration throughout the regions whereas others, notably Jews, showed exactly the opposite. I also included the dummy for war/conflicts, with any war-torn regions being coded 1, and other control variables such as urbanisation rates, crime rates, number of schools, hospital beds, January/July temperatures etc. in the equation to see if the other factors related to living standards besides ethnic and economic variables affect the migration patterns[207].

For the OLS estimators, I did not worry about the endogeneity problem caused by reverse causation. I used lagged variables for main explanatory variables and it is unlikely that the future ethnic migration affected the ethnic share or wage levels of the past in any forms. It is especially the case in the Soviet Union because the wages were exogenously determined by the government and they were unlikely to be correlated with the post-Soviet counterparts.

The OLS estimator, however, may be biased because of sample selection problem, as I selected only 8 out of over 120 ethnic groups residing in the Soviet Union. Even for the 8 major groups, the ethnic share or net migration data are not available for some regions, especially when the ethnic group has a negligible share in the regional population. This might bias

[207] See Table 3-1 and Appendix for the full list of control variables and their sources.

coefficients of main regressors because it is hard to believe that the small ethnic groups, which are more likely to be omitted in the sample, tend to have less likelihood of migration.

To deal with this problem, I applied a two-step Heckman selection model, with the main selection variable of log regional population in the first step probit regression. As shown in the equation below, I assume that ethnic data is likely to be missing when the share of the ethnic group is below 0.05% of the regional population. This should depend on the absolute size of the regional population because the bigger the region is, the bigger the population of each ethnic group is as well. This absolute size of the ethnic population is often more important than its share for the statistics agency to decide to include this group in the official data. In other words, even if Kazakhs accounted for about 0.05% in both small and large regions, they are likely to appear only in the large region's statistics as their absolute size is bigger. The result tables later will show that this often turns out to be the case.

$$I^*\left(Ethnicity_{r,t}\right) = b_1 + b_2 \log\left(Population_{r,t}\right) + b_3 Port_r + b_4 \log(Distance\ to\ Moscow)_r + u_{r,t}$$

$$where\ \ I^*\left(Ethnicity_{r,t}\right) = \begin{cases} 1 \text{ if } Ethnicshare_{r,t} > 0.05\ (\%) \\ 0 \text{ if } Ethnicshare_{r,t} \leq 0.05\ (\%) \end{cases}$$

The use of regional population as the main selection variable also seems to meet the exclusion criterion as it does not directly affect the migration patterns of an ethnic group in the region. Gravity model considers the population size as one of the main factors affecting the magnitude of migration, but this is not the case in my specification. This is because the total regional population is not likely to have an influence on the migration of a certain ethnic group, but it would be the population of the ethnic group itself which matters more. Moreover, the absolute population does not need to be included as one of the regressors because it is already adjusted when calculating the net migration rates. In fact, the correlation between total population and ethnic migration rates turned out to be very weak.

I also include in the first step estimation the port dummy and distance from Moscow. It is easier to collect the detailed data on the ethnicity and include them in the statistics if the region has access by sea or big river and it is close to the capital. This will be justified in the result section of the selection equation.

Before moving on to the result, I would like to highlight the improvement of my method and data compared to the previous literature. First and foremost, it has enabled the inclusion of the ethnic dimension in the analysis of migration. Second, the sample spans both pre- and post-collapse periods, which has never been done in previous quantitative analyses. Finally, it captures the effect on long-term migration, which occurred between two census periods usually having a 10-year gap. Though annual data might be useful in observing short-term trend changes more easily, my data can be useful to find out the fundamental determinants of migration.

Table 3-1. Descriptive statistics, after collapse

Variable	Unit	Obs.	Mean	SD.	Min	Max
Net migration rates	per 1000	723	-16.78	47.80	-114.29	118.54
Ethnic share, 89	%	1,113	9.35	23.19	0	97.39
Wage growth, 85-90	%	1,113	1.90	5.90	-21.00	14.71
Employment share, 90	%	1,113	0.42	0.09	22.76	57.12
Unemployment rates, 95	%	1,113	11.46	4.02	6.34	43.3
Food consumption, 90	Kg	1,092	795.99	125.45	547	1021
House space, 90	M^2	1,092	12.89	3.51	6.6	19.8
Number of students, 90	per 1000	1,092	181.82	40.52	116.63	267.55
Number of doctors, 90	per 1000	1,092	17.51	1.73	12.6	22.9
Passenger distance, bus, 90	km per capita	1,092	1638.32	440.39	710.37	2979.07
Share of urban population, 90	%	1,092	60.25	13.29	31.07	90.36
Temperature range (July-Jan)	ºC	1,113	28.46	6.70	16.0	53.9
Crime rates, 90	per 1000	1,092	9.29	4.25	1.91	31.76
Regional population, 89	thou. persons	1,113	2578	4658	29	51500
Distance to Moscow	Km	1,113	1983	1905	0.01	11876
Port dummy	1 or 0	1,113	0.22	0.41	0	1
Conflict dummy	1 or 0	1,113	0.13	0.33	0	1

Note) Obs.: number of observations, SD: standard deviation. For source, see Appendix

IV. Main Results for Post-Soviet Sample

a. Full sample: OLS and Heckman 2-step estimations

Table 3-2 summarises the results from OLS and Heckman 2-step estimations for the post-collapse sample. Along with ethnic share, employment and conflict, I first put wage growth in the specification, then replace it with log food consumption, and finally include both.

If you look at the results from OLS estimations first, ethnic share in a region turns out to have a positive and significant effect on net migration of the ethnic group, as shown in Column (1) of Table 2-2. This implies that a person who has a certain ethnicity tends to move to a place where his or her co-ethnics account for a high share in the regional population, and/or not to move if he or she is already living in such a place. The result remains unaffected by choice of wage growth or food consumption (Column (2) and (3)). In an econometric sense, one standard deviation change in ethnic share raises the net migration rates by 10.0 to 10.6 per 1000.

It is a confirmation of the hypothesis that the migrants consider the ethnic affinity in a region important when they decide to migrate or choose the destination. As a result of people choosing to move to the places where their co-ethnics live, ethnic unmixing occurs. At this stage, it is hard to tell which of the channels discussed earlier, namely individual utility maximisation, network effect and policy, is responsible for this effect. It seems clear, however, that ethnicity has an independent influence on migration even after controlling for economic variables.

All the economic and conflict variables also have significant coefficients with predicted signs. Lagged wage growth and employment had a positive impact on regional net migration, reassuring the conclusions of previous studies discussed in Section II. When replacing wage growth with a log of food consumption, it also turns out to be significant and well explains the net migration rates. The contribution of food consumption, 11.4 - 12.3 rises in net migration rates for 1 SD deviation, seems larger than that of growth (4.2 - 5.2). They stay significant when both are included together, though.

Table 3-2. OLS & Heckman 2-step estimation, after the collapse

Dependent Variable: Net migration per 1000	(1) OLS	(2) OLS	(3) OLS	(4) Heckman	(5) Heckman	(6) Heckman
Ethnic Share	0.35***	0.32***	0.35***	0.34***	0.33***	0.32***
	(6.04)	(5.76)	(6.65)	(6.21)	(5.98)	(5.98)
Wage	1.26***		0.89***	1.23***		0.87***
	(4.82)		(3.47)	(4.72)		(3.37)
Food consumption		69.16***	63.47***		54.36***	47.40***
		(8.65)	(10.16)		(11.21)	(5.80)
Employment	1.59***	2.28***	1.91***	1.70***	2.29***	2.01***
	(9.30)	(14.81)	(11.10)	(10.26)	(15.30)	(11.94)
Conflict	-23.65***	-9.64**	-2.12	-21.37***	-11.00***	-11.73***
	(-6.28)	(-2.38)	(-0.55)	(-6.07)	(-2.85)	(-3.06)
Dummy for ethnicity	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation (DV: Ethnic data availability)						
Regional population				0.27***	0.27***	0.27***
				(5.09)	(5.09)	(5.09)
Port				0.66***	0.66***	0.66***
				(6.78)	(6.78)	(6.78)
Distance to Moscow				-0.47***	-0.47***	-0.47***
				(-9.72)	(-9.72)	(-9.72)
Total observation	825	709	709	1,272	1,272	1,272
R^2	0.61	0.63	0.68			
Censored obs.				447	447	447
Inverse mills ratio				-35.84***	-29.09***	-29.78***
				(-7.77)	(-6.50)	(-6.65)

Note: In parentheses are t-statistics (z-statistics for Heckman estimators). ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

On the other hand, the effect of conflict is unclear. Its coefficient is negative as predicted and significant at 1% level in Column (1), but it becomes significant at 5% level when the food consumption is included and eventually insignificant when both wage and food come in the equation (Column (2) and (3)). This may indicate that the effects of reduced food consumption absorb the effect of war.

Columns (4), (5) and (6) report the results from the first and second step regressions of the Heckman correction model. About 30 per cent of the sample is censored and the selection variables seem to work quite well. The data is more likely to be missing when the absolute population of the region is small, there is no major port and Moscow is far. The significant inverse Mills ratio in all three specifications means that there is possible selection bias in the

sample which is corrected by the Heckman model. However, the Heckman estimations do not result in substantially different coefficients from what I have in the OLS regression. The sign and significance of ethnic share and other economic variables remain unchanged, while the conflict variable stays significant in Column (6).

b. Robustness check

I then check the robustness of main variables by trying different combinations of control variables, such as temperature range, average house space, number of students, passenger distance by bus, number of medical personnel and crime rates, etc., carefully considering multicollinearity issues. It seems that employment and house space are positively correlated so I include them separately.

Most notable among the results in Table 3-3 is the stability and robustness of the ethnic share variable. It remains significant with positive coefficients around 0.30. The expected increase in net migration along with one standard deviation change in ethnic share is from 8.3 to 8.6, not much lower than the previous results shown in Table 3-2. It is safe to conclude that the ethnicity is one of the most important factors affecting the migration patterns of ethnic groups during the decade after the dissolution of the USSR, again confirming the hypothesis discussed in Section II.

The economic variables also turn out to be quite robust even though their significance is not as stable as that of ethnic share variable. For example, the standardised coefficients for employment share range from 0.17 to 0.37, which means a change in the net migration rate of 8.0 to 17.9 per 1000 for one standard deviation change in employment. The influence of food consumption is also somewhat sensitive to the changes in specifications, whose standardised contributions vary from 8.4 to 12.8 per 1000. Though the size of effects for these economic variables is not as stable, we still can conclude that the wage growth, employment, and food consumption level are all important in determining net migration rates, given the strong significance of their coefficients throughout.

Table 3-3. Robustness check, Heckman 2-step estimation, after collapse

Dependent Variable: Net migration per 1000	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ethnic share	0.31***	0.30***	0.29***	0.29***	0.30***	0.30***	0.30***
	(5.63)	(5.74)	(5.59)	(5.68)	(5.89)	(5.91)	(5.86)
Wage growth	1.11***	1.15***	1.09***	0.54**	0.63**	0.60**	0.60**
	(4.11)	(4.38)	(4.22)	(2.13)	(2.48)	(2.30)	(2.33)
Food consumption	52.93***	40.32***	36.75***	68.18***	77.15***	65.28***	62.48***
	(6.19)	(4.54)	(4.14)	(8.45)	(8.95)	(7.26)	(6.76)
Conflict	-7.58*	-11.04***	-7.10*	-15.62**	-10.63**	-11.07**	-10.04***
	(-1.85)	(-2.63)	(-1.67)	(-4.38)	(-2.74)	(-2.73)	(-2.41)
Employment	2.00***	2.07***	1.92***				
	(10.76)	(10.23)	(9.38)				
House space				6.17***	6.63***	6.33***	6.09***
				(14.77)	(14.27)	(13.54)	(12.11)
Education	0.07*	0.12***	0.18***		0.16***	0.18***	0.19***
	(1.81)	(2.82)	(3.98)		(3.99)	(4.41)	(4.47)
Health	0.87	0.98	1.02*		0.69	0.81	0.89
	(1.41)	(1.60)	(1.67)		(1.19)	(1.41)	(1.54)
Transportation		10.62**	14.15***			15.59***	16.82***
		(2.15)	(2.85)			(3.39)	(3.58)
Weather		-0.84***	-0.82***			-0.32**	-0.32**
		(-4.26)	(-4.19)			(-1.76)	(-1.77)
Crime rates			0.01				0.01
			(0.79)				(0.80)
Ethnic Diversity			-23.77***				-5.53
			(-4.06)				(-0.93)
Dummy for ethnicity	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total observation	1255	1255	1255	1252	1252	1252	1237
Censored obs.	447	447	447	447	447	447	447
Uncensored obs.	808	808	808	805	805	805	790
Inverse Mills ratio	-35.71***	-21.83***	-20.71***	-17.65***	-20.94***	-15.22***	-15.40***
	(-7.21)	(-4.06)	(-3.90)	(-4.15)	(-4.67)	(-2.96)	(-2.99)

Note: In parentheses are z-statistics for Heckman estimators. ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

Another interesting aspect of the result above is that other explanatory variables related to the welfare and living conditions of residents are significant. This is not observed in the late Soviet period as will be seen in the next session, and it means that now people can choose the place where they want to move in and conventional variables explaining migration patterns begin to work. Living space per capita, education and transport now seem to influence the migration positively, going in line with the predictions of economic theory. Temperature range between winter and summer, usually varied due to cold winter, has negative and significant

coefficients, implying that the potential migrants are likely to leave the colder places and move to warmer ones. Ethnic diversity seems to have negative effect on migration, though not always consistently. This may mean that conflict arising due to high ethnic diversity level discouraged in-migration or encouraged out-migration. However, this effect is not robust and will be investigated further in the next chapter in more details.

Health does not report any significance in post-collapse specifications. This is possibly due to the universal health care system, which is regarded as one of the few legacies of Soviet socialism. People had been already benefitting from the relatively egalitarian medical system and there is little reason that they consider health care seriously when they decide to move.

In sum, the ethnic share and other economic variables, including wages, employment and food consumption, did influence the net migration rates during the post-soviet period. The migration patterns are also determined by other explanatory variables related to living conditions.

c. Sensitivity variations by ethnic groups

I now run the same regressions separately for each ethnic group to see if there are differences by ethnicity in responding to ethnic affinity and/or economic conditions. In Table 2-4, you can see that each ethnic group has different responsiveness to the explanatory variables. Russians, Ukrainians and Kazakhs were most sensitive to ethnic share in the destination or the source, showing standardised coefficients of 17.7, 7.0 and 7.8, respectively. On the other hands, Belarusians and Armenians do not seem to care much about the presence of their co-ethnics in the migrating regions. The interesting case is the Jews, who show the negative coefficient on the ethnic variable. This may be because when the proportion of Jewish people is high in a region, they are better organised and help each other to leave the region more easily.

Table 3-4. Sensitivity variation by nationality, Heckman 2-step estimation

Dependent Variable: Net migration per 1,000	(1) Rus	(2) Ukr	(3) Bel	(4) Arm	(5) Kaz	(6) Jew	(7) Non-Rus	(8) Non-Jew
Ethnic share	0.50***	0.21**	0.23	0.02	1.64**	-15.97***	0.41***	0.29***
	(6.12)	(1.95)	(1.05)	(0.04)	(2.11)	(-3.92)	(5.07)	(5.37)
Wage growth	1.50***	0.48	0.60	2.27**	0.47	1.42***	0.96***	1.06***
	(4.51)	(1.09)	(1.26)	(2.18)	(0.52)	(3.47)	(3.26)	(3.69)
Food consumption	38.29***	71.21***	42.83***	70.96*	58.09	-18.5	42.52***	52.57***
	(2.83)	(3.61)	(2.65)	(1.76)	(1.40)	(-0.99)	(3.72)	(10.80)
Employment	0.38	0.88*	2.38***	3.28***	0.92	1.65***	2.11***	1.81***
	(1.08)	(1.91)	(7.24)	(4.15)	(1.02)	(4.37)	(9.10)	(8.27)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for ethnicity	No	No	No	No	No	No	Yes	Yes
Selection variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standardised coefficients: Change in net migration per 1,000 responding to 1 SD increase in								
Ethnic share	17.7***	7.0**	1.8	0.2	7.8**	-8.0***	6.4***	8.1***
Wage growth	7.3***	2.3	2.3	11.0**	2.1	6.4***	4.3***	4.8***
Food consumption	5.6***	10.4***	6.1***	10.3*	6.7	-2.5	6.0***	7.5***
Employment	2.8	6.5*	16.5***	24.1***	6.1	0.4***	15.1***	13.1***
Total observation	156	156	156	159	159	156	1098	1099
Censored obs.	49	49	53	54	82	53	398	394
Uncensored obs.	107	107	103	105	77	103	700	705
Inverse mills ratio	-10.35*	-20.98***	-14.10*	-52.06**	-5.97	-15.99*	-23.85***	-23.89***
	(-1.73)	(-2.57)	(-1.68)	(-2.04)	(-0.22)	(-1.94)	(-3.69)	(-3.84)

Note: In parentheses are z-statistics for Heckman estimators. ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

As to the economic variables, each ethnicity shows different sensitivity. Some seem to respond more to wage growth (e.g. Armenians and Jews), and others seem more to food consumption (e.g. Ukrainians and Belarusians[208]). Kazakhs do not consider the economic conditions very seriously as the data constructed in the previous section have suggested.

[208] This result is not surprising in that the Slavic countries are famous for their agricultural products.

When I remove possible exception of ethnic Russians and Jews (Column (7) and (8)), the results are reporting the significance of both ethnic and economic variables, which again confirms the robustness of the conclusion I draw previously.

V. Pre-collapse Migration Patterns

The late-Soviet specifications exhibit some notable differences compared to its post-Soviet counterpart in many ways (Table 3-5 and 3-6). First, the sign of the ethnic share variable becomes negative, showing the evidence of ethnic mixing. The significance remains strong and robust. Second, the role of economic variables was important in explaining the Soviet migration as well, since the coefficients of wages, food consumption and employment share are all positive and significant. Third, military conflicts and civil wars appear to have affected the migration patterns, even if they occurred after the period of migration in the pre-collapse sample[209]. Finally, variables related to living standards have little impact, possibly due to the smaller autonomy in deciding destinations during the Soviet period.

Table 3-5 summarises the results from baseline OLS and Heckman 2-step estimations for the period before the dissolution of the USSR. The results reveal some significant determinants of late-Soviet migration, but the interpretation is not so simple because migration was still controlled by the Soviet regime during the 1980s. The fact that this government regulation was gradually mitigated during the *perestroika* and *glasnost* period in the late 1980s makes the interpretation more complex. A variable with a significant coefficient could be read as one of the government's priorities in allocating people in certain regions, or as potential migrants' motivation for voluntary migration.

Column (1) reports a negative coefficient of ethnic share, showing that ethnic mixing clearly occurred during this period. Considering the government's initiative on ethnic

[209] Most ethnic conflicts were concentrated between 1991 and 1995, whereas the pre-collapse sample has data on migration between 1979 and 89. An exception is Nagorno-Karabakh War which began in 1988.

equalisation and population distribution, migrants were likely to be allocated to the places where the share of their co-ethnics was small. This result also implies that if one was living in the region dominated by his or her own ethnic group, he or she is more likely to leave. This is in line with the balanced regional development plan led by the Soviet regime and confirms that the ethnicity was among the key criteria of population reallocation.

Table 3-5. OLS & Heckman 2-step estimation, before collapse

Dependent Variable: Net migration per 1,000	(1) OLS	(2) Heckman	(3) OLS	(4) Heckman	(5) OLS	(6) Heckman
Ethnic Share	-0.21*** (-6.13)	-0.21*** (-6.30)	-0.23*** (-6.63)	-0.22*** (-6.62)	-0.23*** (-6.65)	-0.23*** (-6.66)
Wage Growth	0.30** (2.03)	0.35** (2.32)			0.20 (1.34)	0.27* (1.78)
Food consumption			20.65*** (4.25)	16.71*** (3.21)	19.52*** (3.96)	14.87*** (2.81)
Employment	0.94*** (9.05)	0.87*** (8.29)	0.97*** (10.58)	0.94*** (10.13)	0.90*** (8.72)	0.85*** (8.11)
Conflict	-6.01*** (-2.66)	-9.16*** (-3.62)	-6.65*** (-3.10)	-9.54*** (-4.01)	-5.79** (-2.58)	-8.51*** (-3.46)
Dummy for ethnicity	Yes	Yes	Yes	Yes	Yes	Yes
Selection equation (DV: Ethnic data availability)						
Regional population		0.29*** (4.94)		0.29*** (4.94)		0.29*** (4.94)
Port		0.63*** (5.94)		0.63*** (5.94)		0.63*** (5.94)
Distance to Moscow		-0.11** (-2.42)		-0.11** (-2.42)		-0.11** (-2.42)
Total observation	939	1,269	939	1,269	813	1,269
Censored obs.		348		348		348
R^2	0.50		0.51		0.52	
Inverse Mills ratio		-16.59*** (-3.47)		-12.15*** (-2.54)		-12.75*** (-2.65)

Note: In parentheses are t-statistics (z-statistics for Heckman estimators). ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

The magnitude and significance of the ethnic variable remain unaffected by the changes in specifications and the combination of other explanatory variables. When standardising the size of the ethnic share coefficient, one standard deviation change decreases the net migration rates by about 4.7 to 4.8 per 1000. It seems to have been among the largest and most significant explanatory variables affecting the migration patterns of ethnic groups.

The OLS estimation also shows that wage growth did have an influence on net migration, so did the employment level. When wage is replaced by food consumption in Column (3), it remains influential on migration patterns with increased significance. Among these three economic variables, employment was the only economic variable which might have contributed to the migration decision relatively consistently. Other things being equal, one standard deviation increase in employment share would raise the net migration into the region by 4.4 to 5.3 per 1000, which is similar to or somewhat higher than the contribution of ethnic share. The significance of wage growth is gone when both the wage and food consumption are included as seen in Column (5).

The presence of political conflict turns out to have repressed in-migration and/or encouraged out-migration. It is notable that the major civil wars were concentrated in the early 1990s, which does not overlap the period of concern in this specification, but still affects the regional migration patterns. This might imply that the tension and enmity forming before the actual military conflicts are also important in shaping the decision-making of potential migrants.

The results from the Heckman correction model are presented in columns (2), (4) and (6). About 30 per cent of the sample is censored and the selection variables seem to work quite well. The significant inverse Mills ratio in all three specifications means that there is possible selection bias in the sample. However, the Heckman model does not seem to bring about large changes to the signs and significance of the main coefficients, except that the t-statistics for wage variable becomes slightly bigger. I can conclude that the ethnic share and conflict

negatively affect the regional migration patterns whereas food consumption and the opportunity of employment positively do so.

Table 3-6. Robustness check, Heckman 2-step estimation, before collapse

Dependent Variable: Net migration per 1,000	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ethnic Share	-0.22*** (-6.30)	-0.22*** (-6.33)	-0.22*** (-6.51)	-0.21*** (-6.23)	-0.22*** (-6.52)	-0.22*** (-6.58)	-0.22*** (-6.68)
Food consumption	23.40*** (3.38)	28.71*** (3.92)	28.05*** (3.87)	32.98*** (5.02)	35.04*** (5.24)	15.23** (2.23)	20.48*** (2.80)
Conflict	-10.86*** (-4.13)	-12.27*** (-4.82)	-10.22*** (-3.97)	-12.21*** (-4.970)	-10.84*** (-4.20)	-10.42*** (-4.37)	-10.12*** (-4.06)
Employment	0.98*** (8.42)	0.80*** (5.76)	0.56*** (6.75)				
House space				2.65*** (9.53)	1.84*** (4.67)		
Education						-0.27*** (-10.90)	-0.22*** (-5.77)
Health	-0.78 (-1.39)	-1.16* (-1.92)	-0.75 (-1.24)	-0.25 (-0.49)	-0.86 (-1.43)	-0.36 (-0.72)	-0.75 (-1.29)
Transportation	-1.59 (-1.63)	-2.10** (-2.10)	-2.01*** (-2.12)	-2.37** (-2.52)	-2.04* (-2.08)	-3.32*** (-3.63)	-2.97*** (-3.14)
Weather		-0.28* (-2.11)	-0.21 (-1.55)		0.04 (0.30)		0.01 (0.04)
Crime rates		0.83** (2.46)	0.87*** (2.62)		0.84*** (2.63)		0.58* (1.78)
Ethnic Diversity			-18.22*** (-4.82)		-12.27*** (-2.90)		-6.71 (-1.48)
Dummy for ethnicity	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Selection Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total observation	1245	1245	1245	1245	1245	1245	1245
Censored obs.	348	348	348	348	348	348	348
Uncensored obs.	897	897	897	897	897	897	897
Inverse mills ratio	-11.02** (-2.16)	-10.28** (-1.94)	-11.76** (-2.22)	-9.45* (-1.89)	-13.32** (-2.52)	-4.2 (-0.86)	-7.58 (-1.45)

Note: In parentheses are z-statistics for Heckman estimators. ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

I check whether this conclusion remains robust even after trying different combinations of control variables (Table 3-6). Since wage growth becomes insignificant when food consumption is added, I remove wage variable this time. In addition, I add mean housing space, proxies for education, health, and transport, share of urban population, temperature, crime rates, and ethnic fractionalisation. A test of multicollinearity of the control variables shows that employment, housing space and education are positively correlated, so these are included separately.

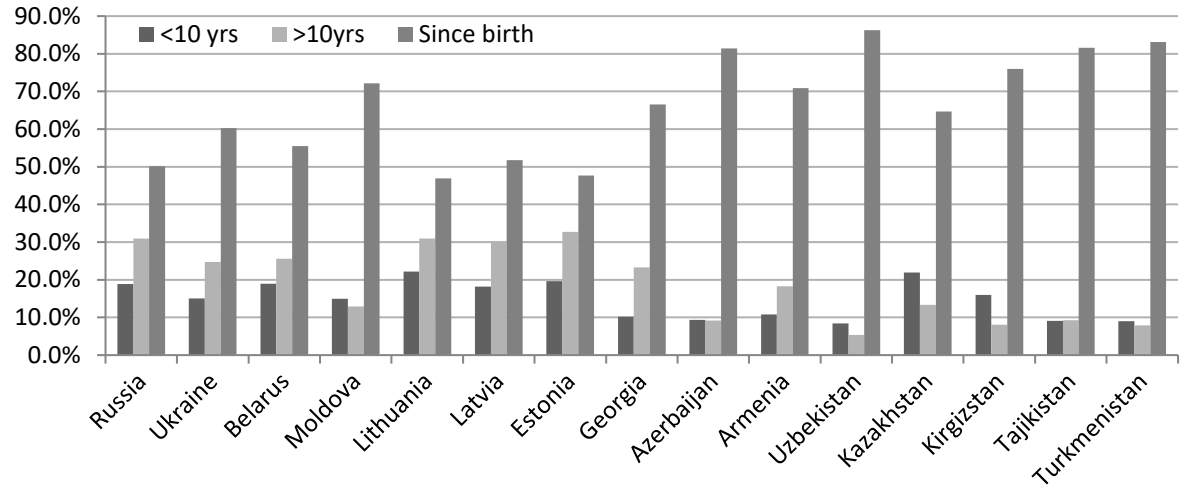
The sign and significance of ethnic share variable survive in all the specifications. In fact, all the ethnic share, food consumption and conflict dummy seem robust to the addition of other variables. Among the control variables, the effects of education and transport are worth noting, as their coefficients are consistently reported to be significant but contradictory to theory. It is against the conventional wisdom that migrants move towards the place providing poorer education and less transportation. The same goes for crime rates, as people choose to stay in the places where there are more crimes. This implies that the Soviet authorities tried to allocate people by artificially manipulating employment level, food consumption or housing space in some regions, whose living standards were in effect not very high. It seems that other variables such as health or weather had little influence on the migration patterns in the pre-collapse period, and this might be because migrants had limited autonomy in choosing their destinations.

VI. Duration of Stay and Return Migration

The entirely different results on the coefficients of the ethnic variable between the pre- and post-collapse samples are confirming the dramatic changes from the trend of ethnic mixing to that of ethnic unmixing. This means that the members of an ethnic group who had been moving into a region completely changed their migration pattern and began to leave at some point around the dissolution of the USSR. One interesting question to be raised then is whether this trend change was due to the return migration of recent migrants or old settlers, as answering this question would tell more about the motivation of returnees. They may have been a) those who recently migrated to other regions for some reasons, e.g. economic benefits, but decided to return due to the removal of the reasons, or b) those who had settled in foreign lands long ago and had not been able to move because of restrictions, but finally returned to their home regions after the dissolution.

Even though there is no data that allows me to directly observe the characteristics and motivation of each migrant, I can still look at the relationship between duration of stay and net migration in my dataset to see if the regions with a relatively high share of new immigrants show the high share of net out-migration. If it was the case, i.e. the recent migrants tend to leave their residence more frequently, then I can cautiously say that their motivation might have been the removal of initial benefits of moving to the region. The data for duration of stay by ethnicity are available in 1989 USSR census, though it is mostly for the major ethnic groups in Russian SFSR and titular groups for 14 other union republics. Unfortunately, there is not regional level data for ethnic groups. I attempt to compensate this by using the regional level duration of stay data for total and working-age population. This section first reviews the relevant descriptive statistics and then reports the regression results.

Figure 3-1. Duration of stay, Titular nationality



Source: 1989 USSR Census, Volume12, Table5-6

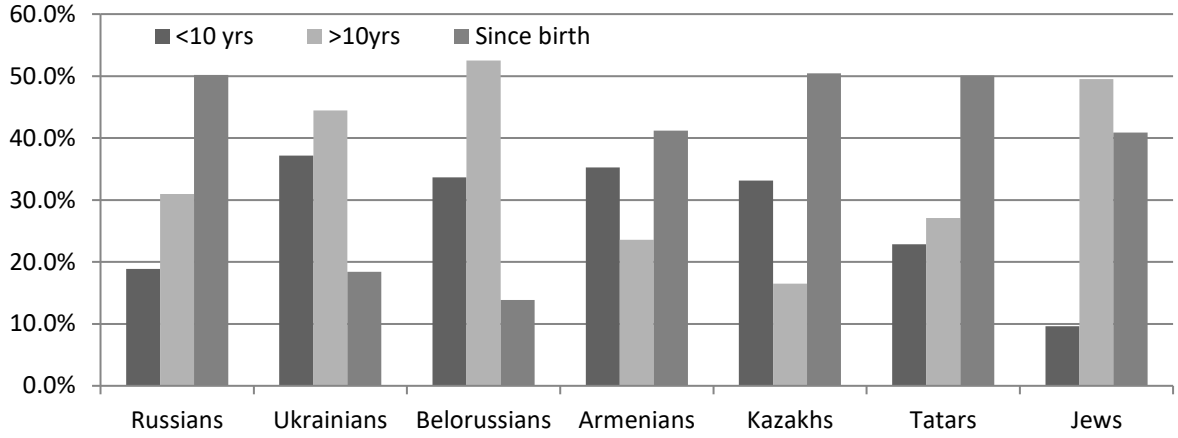
Figure 3-1 shows the duration of stay in their current residence for titular nationalities in 15 union republics right before the collapse of the Soviet Union. It is observable that the ethnic groups in the less developed regions, such as Transcaucasia or Central Asia, show relatively high rates of those who live from birth and low rates of migrants in their titular republics. The least mobile ethnic group is Uzbeks in Uzbekistan, with migrant share of less than 15%[210]. On the other hand, the European part of the USSR, except Moldova, shows the relatively high share of migrants, ranging from 53% in Lithuania and 40% in Ukraine. Among the immigrants, you can see that in all Central Asian republics, Azerbaijan and Moldova, the share of immigrants who migrated less than ten years ago exceeds that of those who had settled for more than 10 years.

Figure 3-2 shows the duration of stay for selected ethnic groups[211] in Russian SFSR. Over 80% of Ukrainians and Belarussians were not born in Russia, while 37% and 34% of them, respectively, migrated less than 10 years ago. The shares of recent migrants (<10yrs) were similar for Armenians and Kazakhs to Ukrainians and Belarussians. Jews, on the other hand, show less than 10% share of recent migrants, meaning that in-migration into Russia had not been active among Jews, which is not surprising.

[210] This might not mean that Uzbeks are least mobile in general, as it is possible that they settle in the places other than Uzbekistan which 1989 census does not reveal.

[211] The list overlaps the ethnic groups selected for econometric analyses in previous sections, except that ethnic Germans are missing.

Figure 3-2. Duration of Stay, Selected Ethnic groups in Russian SFSR



Source: 1989 USSR Census, Volume12, Table5-6

These two results show the share of immigrants according to their duration of residence among different members of ethnic groups, they do not contain any information about the regional level statistics. Table 3-7, alternatively, can be used to see the regional variations in the share of recent migrants for the working-age population. The general trend shown in Table 3-7 is that more developed regions in Slavic republics, including Russia, Ukraine and Belarus, show a higher share of recent migrants. To be specific, in relatively affluent Central and North *raions* of Russia, which have Moscow and Leningrad, only 6.9% of their working-age population had migrated there during the previous 2 years. On the contrary, Siberia and the Far East show 10.5% of recent migrant share, which is much higher than the USSR average (7.5%). The share is below average also in Ukraine and Belarus. This is in line with the migration trend caused by balanced regional development policies discussed in the previous literature.

Non-Slavic republics, however, do not follow the trend of Russia and other Slavic republics. While more developed Baltic republics attracted a high share of immigrants (8.7%), less developed Trans Caucasus did not (4.4%). Central Asia also shows the low share of new immigrants. This can be explained by the migration of ethnic Russians, who were pulled out of Transcaucasia and Central Asia from the 80s. Russians' destinations often include Baltic republics. The exceptionally low share of immigrants in Trans-Caucasian regions can be further attributed to the ethnic conflicts prevalent in that region during the late 80s.

Table 3-7. Share of new immigrants among working-age population[1], by region

Region	New immigrants[2] (thousands)	Total population (thousands)	Share of New immigrants
USSR	11,844	158,911	7.5%
RSFSR	6,769	83,746	8.1%
North-Central	1,752	25,552	6.9%
Volga-Ural	2,992	38,850	7.7%
Siberia-Far East	1,974	18,823	10.5%
Non-Russian Slavic[2]	4,495	65,518	6.9%
Baltic[3]	415	5,000	8.3%
Transcaucasia[4]	388	8,786	4.4%
Central Asia[5]	1,742	25,103	6.9%

Source: 1989 USSR Census, Volume12, Table8

Note: 1) USSR census defines "working age" as 16-59 years old for men and 16-54 years old for women.
2) Number of immigrants who migrated to the region less than 2 years ago.
3) Non-Russian Slavic includes Ukraine, Belarus, and Moldova.
4) Baltic includes Lithuania, Latvia, and Estonia.
5) Transcaucasia includes Georgia, Azerbaijan, and Armenia.
6) Central Asia includes Uzbekistan, Kazakhstan, Tajikistan, Kirgizstan and Turkmenistan.

Using the data discussed above, one can see how the duration of stay affects migration patterns in an econometric setting. I use the same method as the previous sections to regress after-collapse net migration rates on "share of recent immigrants in 1989" variables along with ethnic share and economic conditions. Since data for the share of immigrants are not available at the ethnicity level, I adjusted the regional data for ethnic variations in Russian SFSR. After performing regressions with a full sample (eight ethnic groups), I exclude ethnic Russians to rule out having the biggest ethnic group drive the results. In addition, since the ethnic level duration of stay data is not available for Germans, I do regressions first replacing them with the data for total population and then excluding them from the sample.

Table 3-8. Effect of the share of new immigrants, Heckman 2-step estimation

Dependent Variable: Net migration per 1,000	(1) All	(2) All	(3) Excl. Rus	(4) Excl. Rus	(5) Excl. Ger	(6) Excl. Ger
New Immigrants	-3.51*** (-5.78)	-1.97** (-2.75)	-4.06*** (-5.94)	-2.34** (-2.87)	-3.36*** (-5.35)	-2.26** (-3.11)
Ethnic share	0.31*** (5.86)	0.30*** (5.78)	0.42*** (5.04)	0.38*** (4.72)	0.33*** (6.40)	0.32*** (6.45)
Wage growth	1.03*** (4.06)	1.32*** (5.11)	0.99*** (3.43)	1.27*** (4.32)	1.10*** (4.25)	1.45*** (5.57)
Food consumption	51.08*** (6.02)	45.68*** (4.98)	52.28*** (5.22)	47.76*** (4.47)	43.69*** (5.04)	41.07*** (4.43)
Employment	2.34*** (12.93)	2.42*** (11.10)	2.61*** (12.64)	2.68*** (10.63)	2.22*** (11.98)	2.35*** (10.72)
Control variables	No	Yes	No	Yes	No	Yes
Dummy for ethnicity	Yes	Yes	Yes	Yes	Yes	Yes
Selection variables	Yes	Yes	Yes	Yes	Yes	Yes
Total observation	1029	1012	919	905	892	878
Censored obs.	284	284	284	284	229	229
Inverse mills ratio	-3.78 (-0.54)	0.89 (0.12)	-1.80 (-0.25)	3.46 (0.45)	-6.19 (-0.86)	-2.31 (-0.31)

Note: In parentheses are z-statistics for Heckman estimators. ***, **, * denote the significance level of 1%, 5%, 10% respectively. For definitions and sources of variables, see the text.

Table 3-8 summarises the regression results. The coefficients on the share of new immigrants are continuously reported to be significant and negative regardless of variations in samples and control variables. In the standardised versions, one standard deviation change in new immigrant share results in the reduction of the net migration rates by 4.8 to 9.5 per 1000. This means that the regions with higher shares of new immigrants are likely to show higher net out-migration rates, implying that it may have been the recent migrants who disproportionally return to the home republics after the collapse.

Granted, this result does not confirm the characteristics of returnees as recent migrants. It could be interpreted as a conventional "crowding out" effect of immigration, i.e. the people in the regions where there are more immigrants suffer from lower wage and higher unemployment and thus are displaced to other regions. However, my interpretation can be

justified in that the former in-migrants and current out-migrants have the same ethnicity in the sample, not having an immigrant-native relationship. The in-migration of a certain ethnic group was occurring in the region where their co-ethnics were relatively rare before the collapse (ethnic mixing), and then the share of the same ethnic group dropped when its members had left there after the collapse (ethnic unmixing). Therefore, the return migration story makes more sense than the displacement one. This interpretation, of course, needs to be investigated more thoroughly when the relevant microdata-based evidence becomes available.

VII. Conclusion

In this chapter, I have assessed the key determinants of net migration rates during the transition period. While the conventional migration literature emphasised the role of economic motivations, I argue that ethnicity also exerted a significant influence on the migration decisions and destination choice.

Using the newly constructed dataset in the previous chapter, I conducted OLS and Heckman 2-step estimations on the pre- and post-dissolution periods separately. As the hypotheses predicted, the role of ethnic share turns out to be positive and significant in the post-Soviet period. This result is a complete reverse of what had happened during the late-Soviet period, where the coefficients on the ethnic share are negative. This reverse shows that the effect of ethnicity on migration might be non-linear. I did not deal with the non-linearity of this effect directly, as quadratic form specifications do not fit the model very well. However, the changing signs of the coefficients of ethnic share imply that the effect of ethnicity on migration may be depending on some conditions.

Economic variables, notably wage growth, employment shares and food consumption, also affected migration patterns significantly in both periods, and the presence of civil wars have significant coefficients in some cases but not consistently. The significance of conflict becomes weaker when food consumption is included in the post-Soviet specifications and this might indicate that the food shortage was the channels through which the conflict affected migration.

Another interesting finding in this chapter is that the variables related to the living standards of residents, namely housing space, education or weather, had little influence on migration patterns during the Soviet period, possibly due to the lack of autonomy in choosing destinations. However, the post-Soviet specifications show that the living conditions began to have a stronger impact on migration decision.

Additional exercise with the post-Soviet sample about the relationship between the duration of stay and migration show that the regions with high new immigrant shares have higher net migration rates. This result can be interpreted as the returnees to home republics were mostly those who recently had moved to other regions for some benefits but returned when those benefits disappeared. This interpretation needs more backup from individual-level evidence, though.

The methods and conclusions suggested in this chapter not only contribute to the better understanding of Soviet and post-Soviet migration patterns but also can be used in the analyses of the migration patterns for different regions or periods, as the literature looking at the determinants of migration from the ethnic perspective has been rare. Also, this research combining with the future similar studies may enhance our understanding of the recent rise of nationalism. The pre- and post-collapse periods show a stark contrast in migration patterns and the role of ethnicity explaining it. As discussed in the introductory chapter, the dramatic change from ethnic mixing to unmixing is what has been observed after any major waves of globalisation. Investigating the reasons for the drastic change in migration patterns during the post-Soviet period will allow researchers to understand policymakers' intention to increase or decrease ethnic homogeneity by controlling immigration. The next chapter will attempt to analysis one possible reason for the change, increasing ethnic diversity.

Chapter 4. Diversity Backlash? Migration, Ethnic Fractionalization and Violence in the Soviet Union

Abstract

This chapter aims to reveal how the frequency and size of violent incidents were influenced by regional ethnic diversity in the Soviet period. I first investigate the role of migration in shaping the ethnic fractionalisation and polarisation index of each region, concluding that ethnic diversity did increase in many regions during the last decade of the Soviet period. The titular ethnic groups moving out of their own national territory explain this increase. Based on this result, I analyse whether historically determined patterns of ethnic diversity played a significant role in bringing about the violent incidents which occurred at the end of the Soviet period. I found that more diverse regions tend to have bigger and more frequent protests and riots related to ethnic and nationalist demand, while the relationship between these two may not be linear. Another finding is that, while the level of ethnic diversity has a negative impact, the increase in diversity due to migration mitigates this impact.

I. Introduction

In the previous chapters, I have examined the changing migration patterns in the periods around the collapse of the Soviet Union and pointed out that an ethnic factor was one of the most important determinants of these patterns along with economic ones. The pre-collapse period saw the trend of ethnic mixing, which is characterised by people being dispersed to the regions where there are a small number of their co-ethnics, while the trend was completely reversed in the post-collapse period, allowing ethnic sorting, or ethnic unmixing, to happen.

In this chapter, I attempt to measure the actual effect of ethnic migration on the regional ethnic diversity and then analyse the relationship between diversity and violent incidents occurring during the last years of the Soviet Union. This subject is particularly interesting in that it may reveal whether the migration causing ethnic mixing contributed to the outbreak of nationalist movements and ultimate collapse of the Soviet Union. If this was the case, the post-

collapse migration of titular ethnic groups to their national territories could also be understood as a backlash to previous ethnic mixing. Even though the rapid regime shift around the collapse seems to trigger the large-scale inter-FSU state migration, it might not be a Soviet-specific phenomenon in that the collapse was not exogenous to ethnic diversity. If the ethnic unmixing afterwards is the result of social unrest and eventual breakup of the Soviet Union, the reverse in migration pattern can be interpreted in the context of a general globalisation backlash story of the early 20th century or even today. Borrowing an expression from Williamson (1998), ethnic migrations may have planted the seed of its own destruction[212].

Although it is extremely difficult to pin down the collapse of the Soviet Union to one or two causes, many scholars have argued that the nationalist factor had played an important, if not primary, role in tearing apart the multi-ethnic empire into 15 independent states[213]. Brutal Stalinist repression which later led to sclerotic society gradually fuelled the animosity against the Soviet elites who are in most case Russian nationals[214]. The liberalisation (*Glasnost*) during the Gorbachev era, then, empowered the cultural and academic elites in the peripheral republics to publicly articulate nationalist themes, and soon triggered secessionist movements[215]. From 1987 to 1991, the demonstrations with nationalist demands were not only more frequent but also more effective in mobilising people than those with other demands, such as for democracy or economic reforms[216]. The aim of this chapter is to reveal the effect of historically shaped ethnic diversity on the ethnic mobilisation which eventually brought about the demise of the Soviet Union.

The first task is to see how regional ethnic diversity had changed during the Soviet era and whether migration played a crucial role in shaping the diversity levels. I measure the ethnic

[212] Williamson, 'Globalisation', abstract

[213] For example, Suny, *Revenge*; Strayer, R., *Why Did the Soviet Union Collapse?: Understanding Historical Change* (New York, 1998); Beissinger, *Nationalist Mobilisation* (2002); Beissinger, M., 'Nationalism and the Collapse of Soviet Communism', *Contemporary European History* vol. 18 no. 3 (2009), pp.331-347; Tuminez, A., 'Nationalism, ethnic pressures, and the breakup of the Soviet Union', *Journal of Cold War Studies* vol. 5 no. 4 (2003), pp. 81-136; Ali, M., *The collapse of the Soviet Union : the nationality causes* (New Delhi, 2004)

[214] Ibid., p.337

[215] Strayer, *Understanding Historical Change*, pp.149-50

[216] Beissinger, 'Nationalism (2009), p.336

diversity with ethnic fractionalisation and polarisation indices following the convention of the literature[217] and found a general trend of increasing heterogeneity in the Soviet regions, especially in the decade before the dissolution. I calculate the contribution of migration to the changing diversity levels in the 1980s[218], by producing the counterfactual fractionalisation index in the absence of net migration and comparing it to the actual one. As a result, it turns out that migration did make all the regions but Transcaucasia more diverse, confirming that ethnic mixing occurred.

Then I try to document the effect of increasing regional diversity on the outbreak of ethnic conflicts or riots. The literature has two opposite views on the relationship between diversity and economic or social outcomes. On the one hand, heterogeneous society is prone to competition over limited resources and thus likely to be subject to more conflicts[219]. On the other hand, people might benefit from skill complementarities and the diffusion of new ideas when the society is more diverse[220]. In terms of violence, more contact with ethnically and culturally different members may enhance interpersonal tolerance and reduce the likelihood of violence. A political scientist, Robert Putnam, denotes this as "contact hypothesis" which competes with "conflict theory"[221].

I test the hypotheses derived from the above literature using Bessinger's data collection of 7,586 mass demonstrations which took place in the Soviet Union and its successor states from 1988 to 1992. I found that violent incidents are more likely to occur in the places whose initial diversity level was higher, while its probability reduces when the diversity level had increased due to migration. The latter argument partly supports the contact hypothesis, but it is also related to the nationalist mobilisation in the late-Soviet period. Ethnic unmixing occurred

[217] Fearon, J., Ethnic and cultural diversity by country', Journal of economic growth 8, no. 2 (2003), pp.195-222; Alesina and La Ferrara, 'Ethnic divesity'

[218] I only look at the 1980s due to the data availability.

[219] Easterly and Levine, 'Africa's tragedy'; Montalvo and Reynal-Querol, 'Ethnic diversity', Esteban, J., and Ray, D., 'Linking conflict to inequality and polarization', *American Economic Review* vol. 101 no. 4 (2011), pp.1345-74.

[220] Lazear, 'Diversity'; Ottaviano, G. and Peri, G., 'The economic value of cultural diversity: evidence from US cities', *Journal of Economic geography* vol. 6 no. 1 (2006), pp. 9-44; Bove and Elia, 'Migration'

[221] Putnam, 'Diversity and community', pp.141-2

due to ethnic Russians' out-migration and made it easier for nationalist elites to mobilise the indigenous population, leading to more protests and riots[222]. This results in the negative correlation between increasing ethnic diversity and the frequency of violent events.

This chapter will proceed as follows. Section II will discuss how the level of ethnic diversity changed over the post-WWII Soviet period by constructing various measures of regional diversity and then examine the sources for this change focusing on the effect of migration. In Section III, I will conduct some econometric analyses to document the relationship between the constructed ethnic diversity measures and the increasing ethnic tensions in the late-Soviet period. Here I will first see the effect of ethnic fractionalisation and polarisation indices on the frequency of protests and riots, then alternatively on the size of these violent incidents and major armed conflicts. Section IV concludes.

[222] Suny, *Revenge*, pp.154-5; Kaiser, *Geography of Nationalism*, pp.358-367; Beissinger, *Nationalist Mobilization*, pp.76-9

II. Effect of regional net migration on ethnic diversity

a. The trend of regional ethnic diversity

Different migration patterns by ethnicity, combining with different mortality and fertility rates, have shaped the regional ethnic diversity levels fluctuating over time. Not many demographers looked at the change in ethnic diversity during the Soviet period, except Schwartz (1990) who argues that the diversity levels of 1979 were higher in every ASSRs and autonomous oblasts than in 1926[223]. Non-autonomous regions were not considered in Schwartz's work, though. In this section, I will track the change in the trend of regional ethnic diversity during the Soviet period as far as the data allow, specifically for 1959, 70, 79 and 89. I also look at the post-Soviet states' 2000 round censuses for comparison[224].

To measure ethnic diversity, I use a typical ethnic fractionalisation index (FRAC) [225] which has been adopted by the most studies in the literature including Easterly and Levine (1997), Collier (2000), Alesina and La Ferrara (2005) and Alesina et al. (2016). This index measures the probability that two persons randomly drawn from the population of a country are in two different ethnic groups. Montalvo and Reynal-Querol (2005) suggest an ethnic polarisation index (POLAR)[226] as an alternative to fractionalisation while examining the non-monotonic relationship between the level of diversity and conflict. POLAR measures how close the distribution of ethnic groups is to a bipolar distribution where the two biggest groups take up the half of the whole population each[227]. Lastly, I propose the share of Russians and/or titular nationalities in the regional population considering the distinctive ethnic composition of the Soviet republics[228]. Ethnic diversity levels of non-Russian republics were often determined by the relative shares of Russians and respective titular nationality.

[223] Schwartz, 'Regional population redistribution', pp. 149-151

[224] The FSU states did not conduct 2000 round censuses in the same year. For details, See Chapter 1, Table 1.

[225] FRAC = 1- $\sum_i {s_i}^2$ where s_i is the share of ethnic group *i*

[226] POLAR = 1- $\sum_i (\frac{1/2-s_i}{1/2})^2 s_i$ where s_i is the share of ethnic group *i*

[227] Montalvo and Reynal-Querol, 'Ethnic diversity', p.798

[228] This will be suggested in the text when applicable rather than shown in a table.

Table 4-1, 4-2 and 4-3 show the change in ethnic diversity measures compiled from the censuses in 1959, 70, 79, 89 and 2000. One caveat is that when I calculate the aggregate FRAC and POLAR, I use the average of the FRAC of each region weighted by its population size rather than using the FRAC directly calculated from the ethnic composition of higher level administrative divisions. For example, the FRACs of Lithuania, Latvia, Estonia and Kaliningrad oblast of Russia, which comprise the Baltic *raion*, are 0.34, 0.59, 0.47, and 0.39, respectively. However, if I calculate FRAC of the Baltic *raion* using its combined ethnic composition, it becomes 0.77, which is far higher than any of the FRACs of the lower level regions. This is due to the regional concentration of Lithuanians, Latvians, Estonians and Russians in each of four regions reducing the FRACs there, while the shares of these four groups in the total Baltic population are still sizeable[229]. It can be criticised that the ethnic fractionalisation index does not reflect the true picture of ethnic diversity when there is regional concentration as shown in the Baltic case. Bleaney and Dimico (2017) suggested population-weighted regional fractionalisation to correct possible distortion arising from this issue if one has the regional level data available, which is the case in my calculation[230].

This point is worth a second look because the same can be applied when aggregating regional FRAC for the whole USSR. The commonly used source, Taylor and Hudson (1972), reports that FRAC of the USSR is as high as 0.67, quoting the data compiled by Soviet researchers, *Atlas Narodov Mira,* in 1960[231]. They even argued that this high FRAC in the USSR could be a sign of small ideological bias since it is somewhat contradictory to the regime's efforts to achieve Sovietisation of its citizens[232]. This data seems to be derived and adjusted from the ethnic composition statistics of the 1959 USSR census, where FRAC is calculated to be 0.71. However, the weighted average of regional FRACs is 0.35, which is far lower than the

[229] The shares of Lithuanians, Latvians, Estonians and Russians in their titular republics are 0.80, 0.57, 0.68 and 0.77, respectively, while those in total Baltic population are 0.34, 0.18, 0.12 and 0.25, respectively.
[230] Bleaney, M., and Dimico, A., 'Ethnic diversity and conflict', *Journal of Institutional Economics* vol. 13 no. 2 (2017), p.366
[231] Taylor, C., and Hudson, M., *World handbook of social and political indicators,* (Ann Arbor, 1972), p.272
[232] Ibid., p.216; also, in Easterly and Levine, 'Africa's tragedy', p.1219

above measures. The aggregate FRAC would not allow measuring the effect of ethnic diversity on economic development or ethnic conflicts of the USSR, because it is unlikely that the Russians in the Far East are involved in violence with Tajiks in Tajikistan, but Armenians and Georgians in Transcaucasia are more likely to be competing over limited resources. Therefore, it is necessary to consider the possibility of regional concentration in country-level data, which is used in the diversity literature[233].

Table 4-1. Ethnic Fractionalisation Index from 1959 to 2000

	FRAC					% Change			
Economic region	**1959**	**1970**	**1979**	**1989**	**2000**	**59-70**	**70-79**	**79-89**	**89-00**
USSR	0.345	0.360	0.350	0.354	0.325	4.3%	-2.6%	0.9%	-8.0%
Russia	0.271	0.264	0.265	0.279	0.277	-2.5%	0.2%	5.3%	-0.7%
North	0.285	0.283	0.284	0.292	0.258	-0.7%	0.2%	2.8%	-11.6%
North West	0.159	0.164	0.165	0.179	0.229	3.4%	0.7%	8.2%	28.2%
Central	0.103	0.111	0.113	0.128	0.179	7.7%	1.8%	13.3%	39.7%
Volga-Vyatka	0.253	0.261	0.262	0.266	0.266	3.2%	0.3%	1.6%	-0.1%
Central Black Earth	0.081	0.074	0.080	0.092	0.100	-9.0%	8.0%	14.9%	9.3%
Volga	0.343	0.346	0.351	0.365	0.363	0.8%	1.5%	4.0%	-0.6%
North Caucasia	0.319	0.347	0.361	0.391	0.401	8.8%	4.0%	8.2%	2.5%
Ural	0.407	0.402	0.397	0.396	0.392	-1.2%	-1.3%	-0.2%	-1.0%
West Siberia	0.272	0.240	0.239	0.269	0.252	-11.9%	-0.5%	12.5%	-6.2%
East Siberia	0.287	0.263	0.258	0.266	0.245	-8.5%	-1.8%	3.1%	-8.0%
Far East	0.353	0.307	0.305	0.325	0.271	-13.0%	-0.7%	6.4%	-16.5%
Ukraine	0.381	0.401	0.382	0.390	0.344	5.4%	-4.7%	1.9%	-11.6%
Baltic	0.426	0.447	0.455	0.464	0.409	4.9%	1.8%	2.0%	-11.8%
Transcaucasia	0.431	0.393	0.379	0.330	0.170	-8.8%	-3.5%	-13.0%	-48.5%
Central Asia	0.638	0.606	0.545	0.515	0.418	-5.0%	-10.0%	-5.6%	-18.9%
Kazakhstan	0.715	0.701	0.645	0.639	0.566	-1.9%	-8.0%	-1.0%	-11.4%
Belarus	0.331	0.331	0.341	0.363	0.314	0.1%	3.1%	6.3%	-13.4%
Moldova	0.538	0.547	0.552	0.547	0.492	1.7%	1.0%	-1.1%	-10.1%

Source: 1959, 70, 79 and 89 USSR census; 2000 round censuses (for details, see Chapter 1, Table 1)

[233] Recent literature captures this discrepancy between national and local fractionalisation indices and supplement it using segregation index (Alesina, A., and Zhuravskaya, E., 'Segregation and the quality of government in a cross section of countries', *American Economic Review* vol. 101 no. 5 (2011), p.1880

Returning to the result in Table 4-1, we can see that weighted-average FRACs of the whole USSR had fluctuated around 0.350 from 1959 to 2000, remaining lower than the World average but higher than the West[234]. It slightly went up from 0.350 to 0.354 between 1979 and 89 but dropped sharply to 0.325 in the early 2000s, which is well in line with the reversal of the trends from ethnic mixing to unmixing after dissolution. In other words, the migration patterns in the direction of ethnic mixing raised the ethnic diversity in the USSR while the post-Soviet ethnic unmixing made the FSU states ethnically more homogenous[235].

The regional decomposition gives a clearer idea as to where this diversity variation took place. Although there is difference in the extent, the FRACs rose in most of the Russian economic regions except the Ural. Baltic and Slavic republics also experienced an increase in the diversity level. Somewhat surprising was the reduced diversity in Central Asia and Transcaucasia in the 80s, because we observed the out-migration of the titular groups from these regions to other parts of the USSR in the first and second chapters. This seemingly contradictory result can be explained as follows.

Firstly, there were two kinds of forces which drove the change of the ethnic diversity in non-Russian republics: the migration of their titular ethnic groups and that of ethnic Russians. If Russians leave the region, it means that the share of titular groups goes up and thus the ethnic diversity level goes down. Even before the collapse, it is reported that the Russians began to migration out of Transcaucasia and Central Asia from as early as 1975[236]. This may have lowered the FRAC level in these two regions even though the titular ethnic groups also out-migrated, possibly because the magnitude of Russian out-migration was larger. For example, net out-migration of Kazakhs in Kazakhstan was 128,000 while that of Russians was 492,000 between 1979 and 1989. For Uzbekistan, it was 63,000 for Uzbeks and 188,000 for Russians.

[234] Fearon (2003) measures average FRAC of the World to be 0.48 and that of West to be 0.24, though regional concentration is not considered. Fearon, 'Ethnic and cultural diversity', p.212

[235] Since the change in ethnic diversity is also attributable to natural increase, this argument needs a closer look. This will be elaborated in the next sub-section.

[236] Chapter 1, Kaiser, *Geography of Nationalism*, p.166

Georgia, in contrast, gained 41,000 Georgians by net in-migration, whereas 53,000 Russians left[237]. This is partly proven by Table 4-2 which shows slightly smaller change when Russian population was excluded from the FRAC calculation.

Secondly, the titular groups show higher fertility rates in their national territories than Russians or other minority groups. For example, the average number of children born to Azerbaijani women in Azerbaijan was 2.48 per 1,000 whereas that to Russian women was 1.56. In Uzbekistan, Tajikistan and Kirgizstan, it was 3.21, 3.55, and 3.34, respectively, for titular groups but 1.71, 1.77, and 1.93, respectively for Russians residing there[238]. Even though the titular groups left the region to other parts of the USSR in the 70s and 80s, the high fertility rates allow their population to grow and reduce ethnic diversity.

Lastly, there were non-titular and non-Russian ethnic groups whose members left Transcaucasia and Central Asia. For example, around 63,000 Armenians left Georgia and 67,000 Ukrainians left Kazakhstan in the 80s. These also raised the ethnic homogeneity of these regions. The relative contributions of migration and natural increase will be suggested in the next sub-section when discussing the effect of migration on shaping regional ethnic diversity.

Looking closely at regional diversity levels, European Russia, including Northwest, Central, Volga-Vyatka and Central Black Earth raions, tends to have relatively low FRACs ranging between 0.08 and 0.27, while showing an increasing trend over time. The share of Russians was over 90% in this part whereas that of the biggest not-titular groups, Ukrainian or Belarusian, was between 1 and 2%. Non-European Russia, including Volga, North Caucasus, Ural and the Far East was more fractionalised than its European counterpart, with the FRACs lie between 0.31 and 0.41. This level goes up when the *raions* have large autonomous republics because these regions tend to have a high titular share and low Russian share. For example, the share of Tatars in Tatar ASSR of Volga *raion* is 48.5% whereas Russians account for 43.3% in 1989, making its

[237] Chapter 2, Table21-6
[238] 1989 USSR census, Volume 4, Table 5

FRAC as high as 0.578. The 1989 census reports that the average FRAC of all ASSRs in Russia is 0.570, far higher than Russian average of 0.271[239].

Both West and East Siberia has lower FRACs than the average. In 1979, it was 0.239 and 0.258 in West and East Siberia, respectively, both of which were smaller than 0.264, the Russian average. It is due to the fact that Siberia was not a popular destination until the natural resource industries were moved to Tyumen or Krasnoyarsk *oblasts* and attracted members of non-Russian ethnic groups from the mid-70s[240]. This migration raised ethnic diversity in Siberia from 79 to 89, which later dropped again after the dissolution when those who had moved into this region went back to their home republic as shown in the previous chapters.

The FRACs of other non-Russian Union republics are all higher than Russia's. The dispersion of ethnic Russians, or what is known as Russianization, increased the share of Russians in the regions where other titular ethnic members had been residing, thus raised the level of ethnic diversity as well. The highest share of Russians was shown in Kazakhstan, where it reached 42.7%, which is higher than the share of Kazakhs, 30.0% in 1959. Armenia, on the other hand, was quite homogeneous as the share of Armenians was 88.0% in 1959 and jumped up to 97.9% in 2001[241]. Naturally, the FRAC was very low in Armenia falling continuously from 0.220 in 1959 to 0.128 in 1989 and later reached 0.042 in 2001. The high FRACs of Transcaucasia *raion* in Table 4-1 is due to other two Union republics, Georgia and Azerbaijan.

In Figure 4-1, *oblast*-level ethnic diversity at the end of the Soviet period is visually presented in a map. As discussed above, *oblasts* in European Russia are relatively homogenous whereas non-European Russian *oblasts* are more fragmented. Central Asian regions and ASSRs (E.g. Yakut ASSR in Eastern Siberia) show high ethnic fractionalisation among others. Armenia, on the other hand, stands out as the most homogenous region among its neighbours in Trans- and North-Caucasus regions.

[239] Author's calculation from 1989 USSR census
[240] Allen, R., 'The rise and decline of the Soviet economy', *Canadian Journal of Economics* vol. 34 no. 4 (2001), pp.876-8
[241] The share of Russians in Armenia was not higher than 3% from 1959 to 2001.

Figure 4-1. Ethnic Fractionalisation Index at *oblast* level, 1989

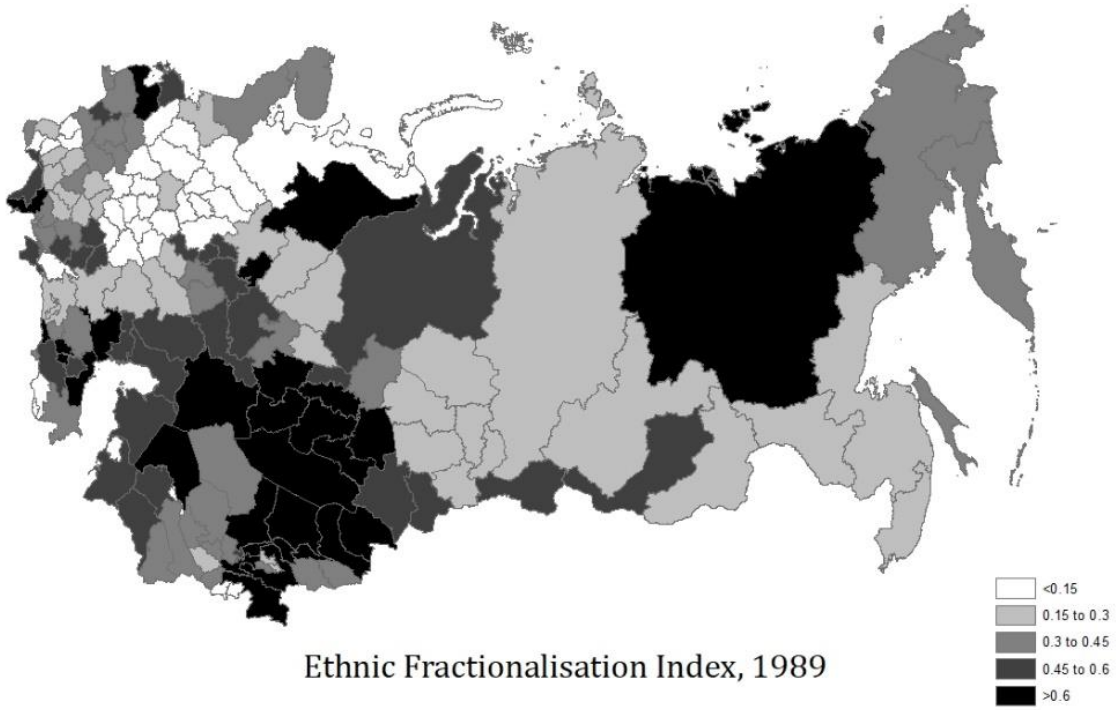


Table 4-2 shows the FRACs calculated excluding Russian population for non-Russian Union republics. The level and change in the non-Russian FRACs give information about the influence of the Russian population in shaping regional ethnic diversity when comparing to the whole population FRACs. The exclusion of Russians generally decreases the level of FRAC, meaning that the Russians were the most significant non-titular ethnic group in those regions. This tendency is more clearly shown in Slavic and Baltic republics where Russian in-migration was observed. The interesting feature in this table is that all non-Russian FRACs go down from 1959 in most of the republics except a few cases in Slavic and Baltic republics. This means that the continuing concentration of indigenes occurred throughout the Soviet Era either through net in-migration or natural increase[242].

[242] Kaiser, *Geography of Nationalism*, pp.162-164

Table 4-2. Ethnic Fractionalisation Index from 1959 to 2000, excluding Russians

	FRAC					% Change			
Economic region	**1959**	**1970**	**1979**	**1989**	**2000**	**59-70**	**70-79**	**79-89**	**89-00**
Ukraine	0.144	0.137	0.135	0.136	0.122	-5.1%	-1.6%	0.8%	-11.2%
Lithuania	0.239	0.224	0.222	0.222	0.201	-6.7%	-0.9%	0.0%	-10.4%
Latvia	0.282	0.339	0.353	0.370	0.323	16.8%	4.0%	4.6%	-14.6%
Estonia	0.128	0.178	0.192	0.217	0.165	28.1%	7.3%	11.5%	-31.5%
Georgia	0.469	0.451	0.425	0.417	0.269	-4.0%	-6.1%	-1.9%	-55.0%
Azerbaijan	0.371	0.316	0.272	0.229	0.148	-17.4%	-16.2%	-18.8%	-54.7%
Armenia	0.169	0.167	0.153	0.101	0.033	-1.2%	-9.2%	-51.5%	-206.1%
Uzbekistan	0.474	0.446	0.382	0.363	0.329	-6.3%	-16.8%	-5.2%	-10.3%
Kirgizstan	0.628	0.585	0.549	0.547	0.425	-7.4%	-6.6%	-0.4%	-28.7%
Tajikistan	0.553	0.524	0.534	0.508	0.322	-5.5%	1.9%	-5.1%	-57.8%
Turkmenistan	0.443	0.399	0.371	0.328	0.314	-11.0%	-7.5%	-13.1%	-4.5%
Kazakhstan	0.686	0.647	0.584	0.557	0.404	-6.0%	-10.8%	-4.8%	-37.9%
Belarus	0.214	0.180	0.168	0.176	0.143	-18.9%	-7.1%	4.5%	-23.1%
Moldova	0.440	0.438	0.433	0.424	0.391	-0.5%	-1.2%	-2.1%	-8.4%

Source: 1959, 70, 79 and 89 USSR census; 2000 round censuses (for details, see Chapter 1, Table 1)

Finally, Table 4-3 reports ethnic polarisation index (POLAR). POLAR is an alternative measure of ethnic diversity which some authors argue is more relevant to explaining conflicts. POLAR is the index describing how close the ethnic composition of a region is to a bipolar distribution where two groups account for half of the population each. The justification to use this alternative is that the conflicts are more frequent when there is a major ethnic group confronted by a large ethnic minority[243]. POLAR will be 1 when there are two equal-size ethnic groups in a region and will decline as the number of ethnic groups increases, whereas FRAC keeps increasing whenever another ethnic group is added. In the Soviet context, the measure of POLAR will be high if there is a non-Russian ethnic group which has a sizeable population in a Russian region, as in ASSRs, or if the size of the Russian population is large in a non-Russian region. This is observed in Table 4-3.

[243] This will be shown to be not applicable to the soviet context. See c. Results of Section III. Montalvo and Reynal-Querol, 'Ethnic diversity', pp.304-5

Table 4-3. Ethnic Polarisation Indices (POLAR) from 1959 to 2000

	POLAR					% Change			
Economic region	**1959**	**1970**	**1979**	**1989**	**2000**	**59-70**	**70-79**	**79-89**	**89-00**
USSR	0.508	0.531	0.539	0.537	0.504	4.4%	1.4%	-0.4%	-6.5%
Russian SFSR	0.393	0.407	0.410	0.416	0.428	3.4%	0.9%	1.4%	2.7%
North	0.395	0.412	0.420	0.432	0.394	4.1%	2.0%	2.6%	-9.6%
North West	0.281	0.290	0.292	0.313	0.391	2.9%	0.8%	6.8%	19.8%
Central	0.190	0.203	0.207	0.233	0.308	6.6%	2.0%	10.9%	24.4%
Volga-Vyatka	0.440	0.451	0.452	0.456	0.452	2.5%	0.2%	0.8%	-0.9%
Central Black Earth	0.159	0.144	0.155	0.176	0.188	-10.3%	7.0%	11.9%	6.4%
Volga	0.557	0.558	0.563	0.577	0.577	0.1%	0.9%	2.4%	-0.1%
North Caucasia	0.425	0.449	0.460	0.495	0.510	5.2%	2.6%	7.0%	3.0%
Ural	0.561	0.555	0.550	0.550	0.543	-1.1%	-0.8%	0.0%	-1.3%
West Siberia	0.444	0.400	0.395	0.423	0.390	-11.2%	-1.2%	6.6%	-8.3%
East Siberia	0.475	0.448	0.442	0.451	0.424	-6.0%	-1.4%	2.0%	-6.2%
Far East	0.567	0.503	0.494	0.509	0.432	-12.8%	-1.8%	3.0%	-18.0%
Ukraine	0.645	0.686	0.650	0.654	0.572	6.0%	-5.5%	0.6%	-14.2%
Baltic	0.670	0.684	0.695	0.701	0.652	2.1%	1.6%	0.9%	-7.5%
Transcaucasia	0.595	0.562	0.529	0.462	0.305	-5.9%	-6.2%	-14.4%	-51.5%
Central Asia	0.714	0.717	0.802	0.749	0.633	0.3%	10.6%	-7.0%	-18.3%
Kazakhstan	0.718	0.743	0.817	0.808	0.765	3.3%	9.1%	-1.1%	-5.7%
Belarus	0.541	0.548	0.594	0.614	0.547	1.2%	7.8%	3.2%	-12.2%
Moldova	0.712	0.717	0.724	0.723	0.689	0.7%	1.0%	-0.2%	-4.9%

Source: 1959, 70, 79 and 89 USSR census; 2000 round censuses (for details, see Chapter 1, Table 1)

The POLARs of non-Russian *raions* are reported to be higher than those of Russian raions, similar to what was observed in FRAC tables. Central Asia and Kazakhstan are most polarised in the USSR throughout the Soviet period, and this can be explained by the high proportion of ethnic Russians in those regions as discussed above. In the 1980s, however, POLARs dropped slightly because of the early out-migration of ethnic Russians from Central Asia. Baltic regions, on the other hand, kept gaining Russian in-migrants until the end of the Soviet period and POLAR rose as a result.

It is not surprising that the Russian *raions* are less polarised than other Union republics,

because the proportion of Russians are high and other ethnic groups are fragmented, rather than one big ethnic group dominates. Exceptions are the *raions* having big ASSRs, such as Volga (Tatar ASSR), Ural (Bashkir and Udmurt ASSRs), North Caucasia (Chechen-Ingush ASSR) and Far East (Yakut ASSR). This is because the titular group has a comparable population to Russians in their autonomous regions, and these *raions* have POLARs around or over 0.5, which are higher than the Russian average, 0.416, in 1989.

Figure 4-2 depicts the relationship between the FRAC and POLAR in around 150 Soviet *oblasts* in 1989. The correlation is as high as 0.897 in the whole sample, but it turns negative to -0.569 when the FRACs over 0.5 is considered. This merely shows the mathematical relationship between two different measures where highly fragmented regions should have low polarisation index by definition. POLAR, however, has been useful in capturing the non-monotonic effect of diversity on development or conflicts in the literature. I will test whether FRAC and POLAR exert different influence on the frequency of violent incidents in Section III.

Figure 4-2. Correlation between ethnic fractionalisation and polarisation

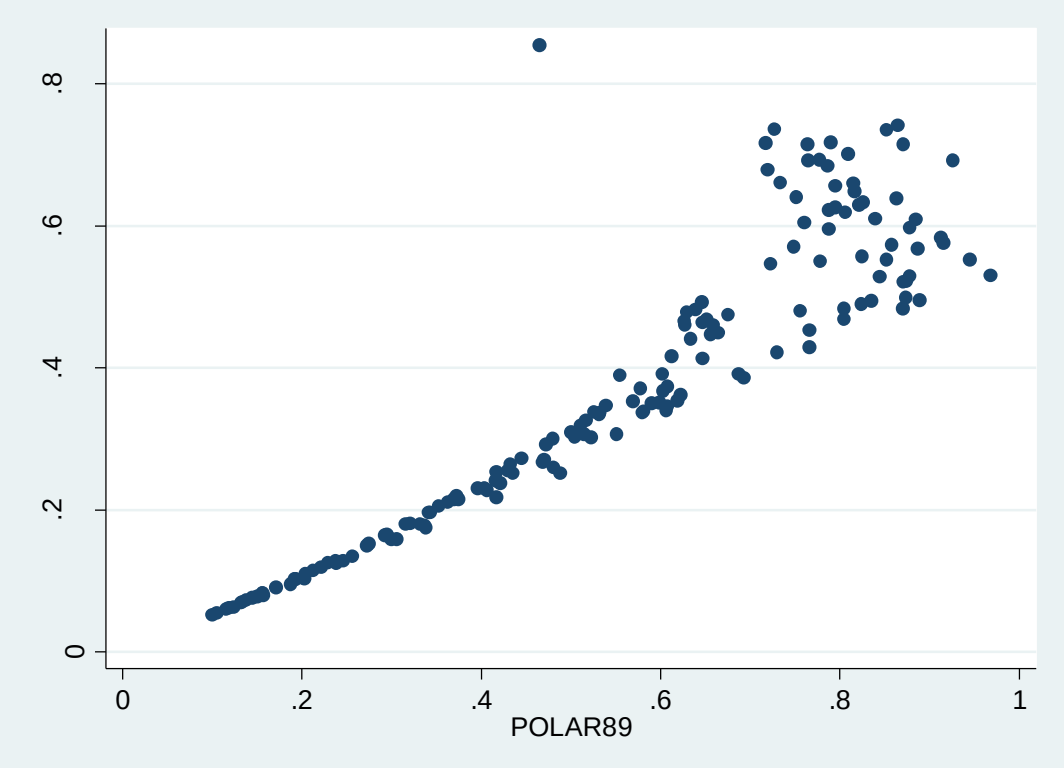


Table 4-4. Ethnic Polarisation Index from 1959 to 2000, excluding Russians

	POLAR					% Change			
Economic region	**1959**	**1970**	**1979**	**1989**	**2000**	**59-70**	**70-79**	**79-89**	**89-00**
Ukraine	0.261	0.249	0.256	0.242	0.215	-4.7%	2.7%	-5.8%	-12.7%
Lithuania	0.432	0.407	0.401	0.400	0.379	-6.2%	-1.5%	-0.1%	-5.5%
Latvia	0.461	0.527	0.544	0.561	0.527	12.5%	3.1%	3.1%	-6.4%
Estonia	0.236	0.315	0.337	0.376	0.312	25.3%	6.5%	10.3%	-20.5%
Georgia	0.652	0.634	0.624	0.618	0.473	-2.8%	-1.6%	-0.9%	-30.7%
Azerbaijan	0.606	0.528	0.467	0.397	0.277	-14.7%	-13.0%	-17.6%	-43.7%
Armenia	0.316	0.312	0.288	0.191	0.080	-1.3%	-8.6%	-50.3%	-139.7%
Uzbekistan	0.619	0.600	0.625	0.563	0.532	-3.2%	4.1%	-11.0%	-6.0%
Kirgizstan	0.688	0.696	0.829	0.747	0.667	1.1%	16.0%	-11.0%	-12.0%
Tajikistan	0.795	0.795	0.791	0.788	0.598	0.0%	-0.5%	-0.4%	-31.7%
Turkmenistan	0.624	0.592	0.665	0.594	0.534	-5.5%	11.1%	-12.1%	-11.2%
Kazakhstan	0.661	0.673	0.75	0.721	0.581	1.8%	10.3%	-4.0%	-24.0%
Belarus	0.387	0.326	0.331	0.333	0.273	-18.7%	1.6%	0.3%	-21.7%
Moldova	0.678	0.674	0.673	0.664	0.628	-0.6%	-0.1%	-1.3%	-5.8%

Source: 1959, 70, 79 and 89 USSR census; 2000 round censuses (for details, see Chapter 1, Table 1)

Table 4-4 reports the polarisation index when excluding ethnic Russians in non-Russian union republics. This shows whether there were two non-Russian ethnic groups dominated a union republic. Central Asian republics tend to have high non-Russian POLAR, whereas Slavic or Baltic republics have low non-Russian POLAR.

b. Diversity change due to net migration

As shown thus far, ethnic diversity has been increasing in most of the Russian and non-Russian raions during the last decade of the Soviet Era, in terms of both fractionalisation and polarisation. The notable exceptions were Central Asia and Transcaucasia, which may be due to the early exodus of Russians from these regions and high fertility rates of titular national groups. It is necessary in this section to look more closely at the sources of the change in ethnic diversity because the implications of increasing diversity on violence can be different depending on whether it is due to natural increase or net migration. Particularly, it is important to reveal the effect of migration on the changing ethnic diversity independent of fertility and mortality variations, because the tension between two or more groups would rise more when the diversity increases due to the influx of outsiders than when it is just due to the size of some insiders getting bigger.

Using the net migration data constructed in the previous chapters, I produced a counterfactual ethnic fractionalisation index in the absence of net migration and calculated the difference between the actual and counterfactual values[244]. Ethnic and regional level migration data are required to calculate the counterfactual ethnic diversity, and I can utilise the dataset I constructed in Chapter 2 for this purpose. This practice will be applicable only to the 1979-89 and 89-00 periods since the net migration estimates are available only for these two periods. I subtract net migration of all ethnic groups from their population at the end of each period and calculate counterfactual FRAC assuming there was no migration. Then the difference between actual and counterfactual FRACs should be the contribution of net migration to the changing ethnic diversity. The late-Soviet period is my main period of concern since the ethnic violence was concentrated in the late 80s and early 90s, and the aim of this chapter is to see whether the ethnic mixing due to migration raises the chance of those conflicts occurring.

[244] Similar approach is adopted to explain the changing ethnic diversity in the US counties. Winkler, R., and Johnson, K., 'Moving toward integration? Effects of migration on ethnoracial segregation across the rural-urban continuum', *Demography* vol. 53 no. 4 (2016), p.1036

Table 4-5. The sources of change in ethnic diversity, 1979-89

	FRAC			% Change		
Economic Regions	1979 actual	1989 actual	1989 no NM[1)]	total	due to NI[2)]	due to NM
USSR	0.350	0.354	0.341	0.9%	-2.7%	3.6%
Russian SFSR	0.265	0.279	0.272	5.3%	2.8%	2.5%
North	0.284	0.292	0.291	2.8%	2.7%	0.1%
North West	0.165	0.179	0.178	8.2%	8.1%	0.1%
Central	0.113	0.128	0.126	13.3%	11.1%	2.1%
Volga-Vyatka	0.262	0.266	0.264	1.6%	0.7%	0.9%
Central Black Earth	0.080	0.092	0.088	14.9%	10.0%	4.9%
Volga	0.351	0.365	0.363	4.0%	3.3%	0.7%
North Caucasia	0.361	0.391	0.379	8.2%	5.0%	3.2%
Ural	0.397	0.396	0.380	-0.2%	-4.2%	3.9%
West Siberia	0.239	0.269	0.258	12.5%	8.0%	4.5%
East Siberia	0.258	0.266	0.260	3.1%	0.6%	2.5%
Far Eastern district	0.305	0.325	0.315	6.4%	3.2%	3.2%
Ukraine	0.382	0.390	0.376	1.9%	-1.6%	3.5%
Baltic	0.455	0.464	0.454	2.0%	-0.2%	2.2%
Transcaucasia	0.379	0.330	0.355	-13.0%	-6.3%	-6.7%
Central Asia	0.545	0.515	0.420	-5.6%	-23.0%	17.4%
Kazakhstan	0.645	0.639	0.575	-1.0%	-10.9%	9.9%
Belarus	0.341	0.363	0.329	6.3%	-3.7%	10.0%
Moldova	0.552	0.547	0.555	-1.1%	0.5%	-1.5%

Note: 1) NM denotes net migration. This column shows the counterfactual level of ethnic diversity when there had been no net migration at all.
2) NI denotes natural increase.

Table 4-5 shows the sources of change in the level of ethnic diversity from 1979 to 89, decomposing it into a change due to natural increase and that due to net migration. In this table, the effect of migration on ethnic mixing is shown more clearly. Migration raised ethnic diversity from 1979 to 89 in the USSR as a whole and in all Russian and non-Russian economic regions except Transcaucasia and Moldova. This result reinforces the conclusions of the previous chapters which argue that the migration occurred in the direction of ethnic mixing and therefore increase the ethnic diversity of the sending and receiving regions.

FRAC in Central Asia and Kazakhstan is seen dropping by 5.6% and 1.0%, respectively, between 1979 and 1989 in Table 4-1 and in the column "total change" of the table above. However, it turns out that the out-migration of titular nationals did increase ethnic diversity by 17.4% in Central Asia and 9.9% in Kazakhstan, while the even higher fertility of the indigenous

people accounts for the observed homogenisation. This is in line with what I discussed previously as to the reasons why FRACs in Central Asia lowered despite the ethnic mixing.

Transcaucasia remains as an exception. Even though some members of the titular groups left and decreased ethnic diversity, the early exodus of ethnic Russians from this *raion* was more significant and worked as a force pulling the FRACs down. High Russian in-migration in North Caucasia, which is adjacent to Georgia and Azerbaijan, during the 1980s also shows that the magnitude of out-migration of ethnic Russians from Transcaucasia.

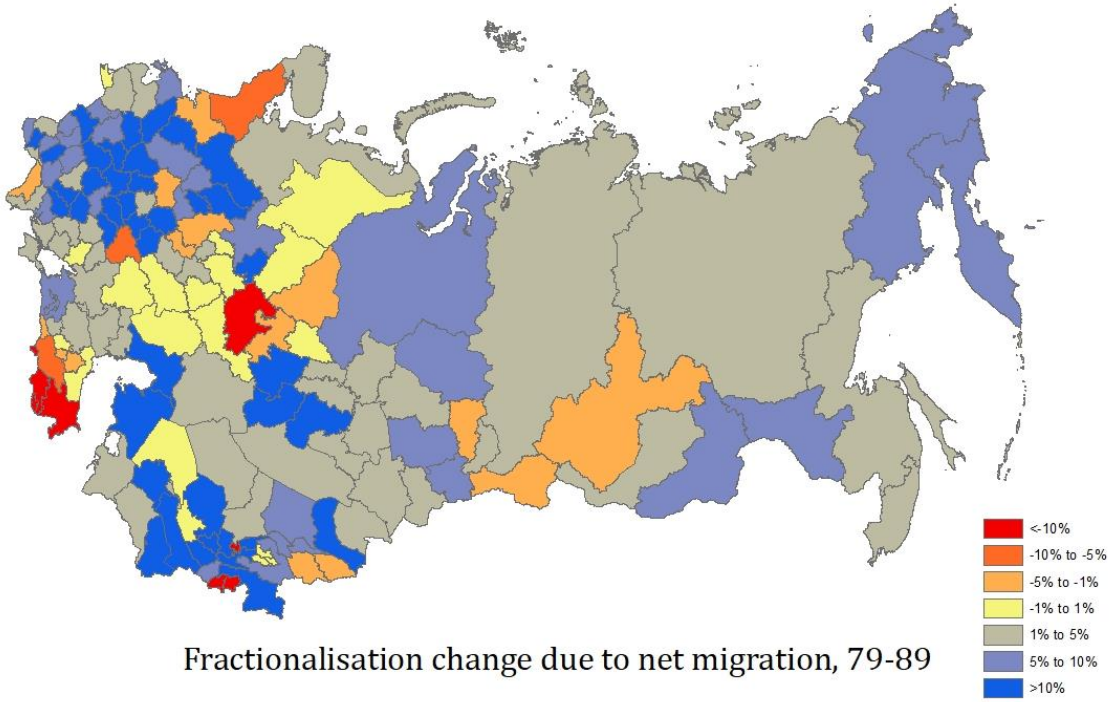
Table 4-6 reports the sources of change in ethnic diversity in the first decade of the post-Soviet period for comparison. As expected, migration played a great role in lowering ethnic diversity in all the regions without a single exception. This again reinforces the earlier point of ethnic unmixing and sorting which occurred after the collapse of the Soviet Union.

Table 4-6. The sources of change in ethnic diversity, 1989-2000

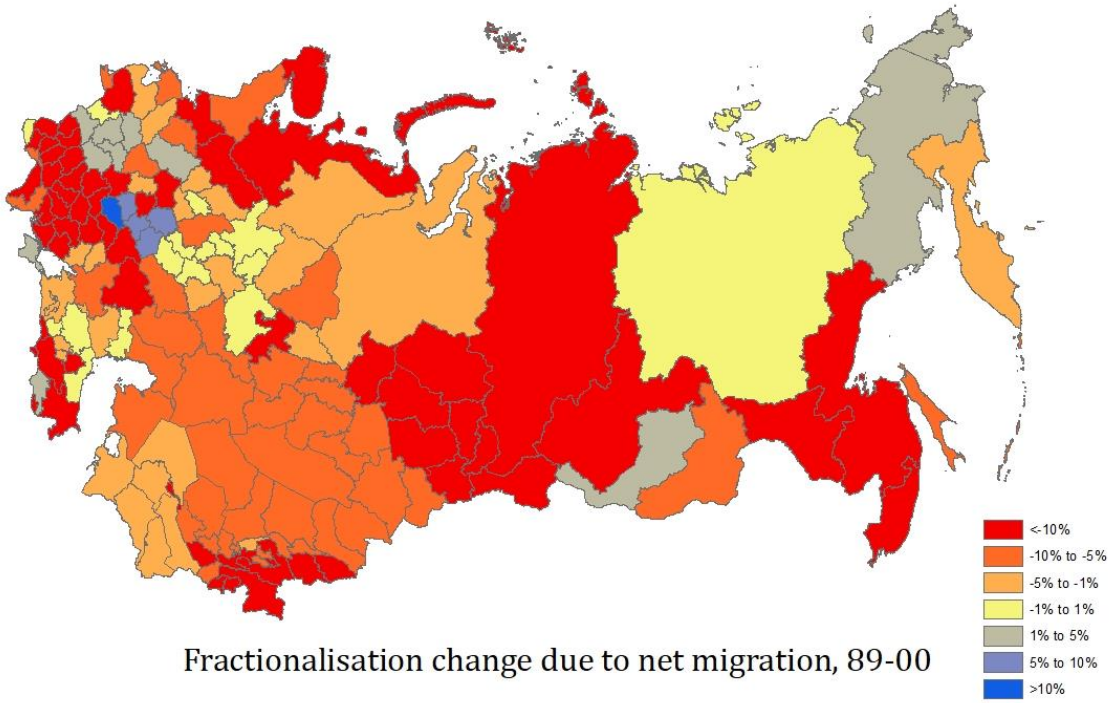
	FRAC			% Change		
Economic Regions	**1989**	**2000 actual**	**2000 no NM**	**total**	**due to NI**	**due to NM**
USSR	0.354	0.325	0.354	-8.0%	0.2%	-8.2%
Russian SFSR	0.279	0.277	0.300	-0.7%	7.7%	-8.5%
North	0.292	0.258	0.280	-11.6%	-3.9%	-7.6%
North West	0.179	0.229	0.260	28.2%	45.5%	-17.3%
Central	0.128	0.179	0.195	39.7%	52.2%	-12.5%
Volga-Vyatka	0.266	0.266	0.270	-0.1%	1.2%	-1.3%
Central Black Earth	0.092	0.100	0.112	9.3%	22.6%	-13.3%
Volga	0.365	0.363	0.375	-0.6%	2.7%	-3.4%
North Caucasia	0.391	0.401	0.423	2.5%	8.3%	-5.7%
Ural	0.396	0.392	0.409	-1.0%	3.3%	-4.3%
West Siberia	0.269	0.252	0.283	-6.2%	5.6%	-11.8%
East Siberia	0.266	0.245	0.268	-8.0%	0.8%	-8.8%
Far Eastern district	0.325	0.271	0.316	-16.5%	-2.6%	-13.9%
Ukraine	0.390	0.344	0.391	-11.6%	0.4%	-12.1%
Baltic	0.464	0.409	0.445	-11.8%	-4.1%	-7.8%
Transcaucasia	0.330	0.170	0.242	-48.5%	-26.8%	-21.7%
Central Asia	0.515	0.418	0.464	-18.9%	-9.8%	-9.1%
Kazakhstan[1)]	0.692	0.622	0.682	-10.1%	-1.5%	-8.6%
Belarus	0.363	0.314	0.329	-13.4%	-9.4%	-4.0%
Moldova	0.547	0.492	0.555	-10.1%	1.6%	-11.6%

Note: 1) Country-level FRAC is used to compare two periods since the regional data is not available for Kazakhstan in 1999 census.

Figure 4-3. FRAC change due to migration, before and after the collapse



Fractionalisation change due to net migration, 79-89



Fractionalisation change due to net migration, 89-00

The changing trend from ethnic mixing to ethnic unmixing after the collapse can be vividly observed in Figure 4-3 as well. In the late-Soviet period, most regions are coloured blue or grey, with a notable exception of Transcaucasia, meaning that migration in this period contributed to the heterogenization of Soviet *oblasts*. On the other hand, red or orange oblasts are dominant in the post-collapse map, showing the clear sign of ethnic unmixing caused by net migration.

I estimate simple regressions of the determinants of changing diversity in the late-Soviet period. As I discussed before, two important migratory streams which shaped the regional ethnic diversity in the 1980s were the out-migration of titular ethnic groups from their national territories and that of ethnic Russians from non-Russian republics, notably Central Asia and Transcaucasia. It is possible to compare the contributions of these two groups by regressing the change in FRAC or POLAR on the migration of both titular groups and Russians, with the estimation equation constructed as follows.

$$\Delta FRAC_r = a_0 + a_1(M/P)_r^T + a_2(M/P)_r^R + a_3 Fertility_r^T + X'_{r,t}\gamma + \varepsilon_{r,t}$$

$\Delta FRAC_r$ is the difference in ethnic fractionalization indices between 1979 and 1989 in region r and I replace it with ethnic polarization indices later. The main explanatory variables, $(M/P)_r^T$ and $(M/P)_r^R$, are the net migration of the titular group and Russians per 1000, respectively. The sign of the coefficient on titular nationals' migration should be negative, as the net in-migration of the titular group in their national territory would raise the ethnic homogeneity of the region. With the same logic, out-migration, which is expressed as negative net migration, would raise the ethnic diversity, making its coefficient negative. $(M/P)_r^R$ will be included for the non-Russian sample, and the Russian net-migration should have a positive coefficient as the influx of Russians to the regions where there are the indigenes already settling will raise the ethnic diversity, and vice versa for net out-migration. I also include the birth per women of titular groups relative to the average of the region, $Fertility_r^T$, to control for the

offsetting effect of high fertility rates as discussed above. Other control variables, X, include share of employment, food consumption, share of recent migrants, proxy for transport and port dummy.

The caveat to the interpretations is that there is no causal relationship between the dependent and independent variables. Rather, there should be a mechanical relationship between net migration and ethnic diversity indices because if a titular group member moves out of an *oblast*, it affects the numerator and denominator of their share in total population and the denominator of the share of all other groups. This means that the fractionalization index will be affected by the changing share due to migration. However, this practice is still useful in that it allows me to see the different contributions, even if it is mechanical, of the titular groups and Russians to changing diversity relatively easily. Also, it reveals some information about the correlation between the diversity measures and other variables such as fertility.

Table 4-7. The relationship between migration and diversity, 1979-89

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	$\Delta FRAC$	$\Delta FRAC$	$\Delta FRAC$	$\Delta POLAR$	$\Delta POLAR$	$\Delta POLAR$
Titular migration	-0.22**	-0.33**	-0.51***	-0.06	-0.12	-0.30*
	(-2.70)	(-3.14)	(-4.41)	(-0.73)	(-1.05)	(-2.39)
Russian migration			0.48**			0.47**
			(3.13)			(2.90)
Titular fertility	-0.18*	-0.08	-0.18	-0.14	0.11	0.00
	(-2.05)	(-0.52)	(-1.26)	(-1.58)	(0.67)	(0.00)
Employment	0.31***	0.13	0.12	0.40***	-0.01	-0.02
	(3.41)	(0.74)	(0.75)	(4.28)	(-0.07)	(-0.10)
Food consumption	0.19*	0.31*	-0.12	0.16*	0.40**	-0.02
	(2.40)	(2.35)	(-0.62)	(2.06)	(2.85)	(-0.10)
Recent migrants	0.25**	0.23*	0.14	0.15	0.16	0.06
	(3.00)	(2.12)	(1.24)	(1.81)	(1.36)	(0.55)
Transport	0.02	-0.10	-0.01	0.05	-0.05	0.05
	(0.27)	(-0.74)	(-0.04)	(0.59)	(-0.31)	(0.34)
Port	-0.04	-0.06	-0.01	-0.07	-0.05	-0.00
	(-0.53)	(-0.69)	(-0.17)	(-1.06)	(-0.53)	(-0.04)
R^2	0.36	0.35	0.41	0.32	0.26	0.32
No. Obs.	156	100	100	156	100	100

Note: Standardized beta coefficients; t statistics in parentheses, * p<0.05, ** p<0.01, *** p<0.001.

Table 4-7 reports the results of OLS estimation for the relationship between migration and ethnic diversity change. First three columns are when the change in FRACs is the dependent variable. Column (1) shows that, in the full sample, the migration of titular ethnic groups has a negative and significant coefficient as predicted. This means that the inflow or outflow of titular national groups was one of the main drivers shaping ethnic diversity in a region. To be specific, one standard deviation (SD) increase in net in-migration rates of titular members will decrease the ethnic fractionalization index by 0.22 of its standard deviation. This becomes much clearer when you look at the results from a non-Russian sample in Columns (2) and (3), where the beta coefficient of Titular migration variable goes down to -0.33 and -0.51 with a high significance level. When the migration of Russians is included in Column (3), the result comes out in line with the prediction showing a positive and significant coefficient on it. One SD increase in the net-migration rates of Russians will increase the ethnic diversity in the non-Russian regions by 0.48 SD of FRAC. The fertility rate of titular groups turns out to be somewhat significant in the full sample but not in the non-Russian sample, though the sign was negative as predicted. It seems that the migration of sizable groups was a more important driver of ethnic fractionalisation than natural increase during this period.

Other control variables like employment and food consumption turn out to be significant in the full sample, but this significance disappears when I excluded Russian regions from the sample. Some variables related to the living standard seem to increase ethnic diversity by attracting various non-titular ethnic groups to the regions. The share of recent migrants also has a positive and significant coefficient, meaning that the migration was in the direction of ethnic unmixing during the late-Soviet period. The most obvious example of this is Siberian regions, as discussed in the previous section. This effect is not seen in the non-Russian sample since first, the regions whose diversity was most affected by living conditions were located in Russia and second, the ethnic Russians were most responsive to these control variables as shown in the previous chapter. This is evident from the fact that none of the control variables has significance

when Russian migration is included in Column (3).

Looking at the last three columns, it seems that migration affected the ethnic polarization to a less extent. Though the signs are the same as previous models with FRACs, the significance level is little or none for the titular migration. Russian migration, however, had some influence in shaping regional POLAR for the non-Russian regions as the coefficient is reported positive and significant in Column (6). Most of the other control variables, including the fertility rates, seem to have little effect on the change in ethnic diversity.

III. Ethnic Diversity and Violence

Thus far we have seen how the regional ethnic diversity had changed during the Soviet period since 1959. I suggested that the reasons for this change include the migration of the members of different ethnic groups in the direction of ethnic mixing or unmixing and the different fertility rates shown among these groups. In this section, I will examine whether the level of ethnic diversity affected the frequency and the size of the violent incidents at the end of the Soviet era.

a. Previous literature

There has been an extensive discussion in the literature as to the impact of ethnic diversity on economic and social outcomes, though the conclusion is not straightforward[245]. It is argued that a more fragmented society is subject to rent-seeking behaviours, competition over public goods and resulting social unrest, leading to a reduction in investment and poor economic performance (Easterly and Levine 1997; La Porta et al. 1999; Vanhanen 1999; Alesina and La Ferrara 2005; Montalvo and Reynal-Querol 2005; Esteban and Ray 2011; Bleany and Dimico 2017). However, the adverse effect of ethnic fractionalisation may not be very large if the society has an ability to deal with the coordination problem. Many authors recognise the different implications of ethnic and cultural heterogeneity depending on the institutional settings of affected societies. (Collier 2000, 2001; Alesina and La Ferrara 2005; Fish and Kroenig 2006; Goren 2014). For example, Collier (2000) found that democratic countries are not affected much by ethnolinguistic fragmentation[246]. In addition, some argue that a country or an organisation can benefit from more diversity (Lazear 2000; Ottaviano and Peri 2006; Putnam 2007; Horwitz and Horwitz 2007; Bove and Elia 2017). The diffusion of new ideas, complementarities between different skill levels and mutual learning can bring about positive outcomes from diverse societal members[247].

[245] See Chapter 1, Literature Review for details.
[246] Collier, 'Ethnicity (2000)'
[247] Bove and Elia, 'Migration', pp.228-229

In this section, I will test which of the positive and negative impacts was bigger in the Soviet context, using the late-Soviet regional data. I focus on the effects of level and change rate of ethnic fractionalisation on the occurrence of violent incidents. The implication of ethnic diversity on violence may not be as simplistic in the Soviet context. I will discuss the Soviet-specific phenomenon in the result section if applicable.

b. Data and method

I firstly use the number of protests and riots occurred from 1987 to 1992, which was collected by Beissinger (2002), to measure the level of violence. 5,583 protests and 2,003 riots were recorded based on press or government reports, with the information about the time, location, participants (protest only) and causes/demands of individual events. I rearrange the events by their location so that they match the ethnic fractionalisation index of 150 regions[248] in my dataset. I also separate the protests and riots related to ethnic or nationalist demands for an alternative regression model. Later, I use the dummy for major conflict as a dependent variable to see if other measures of ethnic violence are affected by ethnic diversity level.

Table 4-8 shows the number of uprisings[249] per 1 million population, FRAC, POLAR and change in diversity due to net migration in the regions where the level of violence is the highest. All five regions on the top belong to three Transcaucasian Union republics, Georgia, Azerbaijan and Armenia, whereas other two are ASSRs in Russians SFSR. The most violent regions show a high ethnic diversity level except Nakhichevan ASSR and Armenia, with the FRAC index of Abkhaz ASSR (0.73) being bigger than twice the USSR average (0.35) in 1979. Two ASSRs at the bottom are also amongst the most ethnically fractionalised regions in Russian territories. However, the change in ethnic diversity caused by migration over the next 10 year was negative in all top 5% regions.

[248] Regions include oblast and ASSRs, but Union republic are sometimes included as a region when their size is relatively small.
[249] Uprising includes both protest and riot.

Table 4-8. Top 5% high violence oblast / ASSR, 1988-1992

Oblast / ASSR	Number of uprisings		Major conflict	FRAC79	POLAR79	ΔFRAC89 due to NM
	Total	Per 10 million				
Abkhaz ASSR	242	292	Yes	0.727	0.720	-1.9%
Nakhichevan ASSR	89	214	No	0.085	0.175	-13.7%
Baku	1036	135	Yes	0.387	0.583	-20.4%
Tbilisi	868	95	Yes	0.483	0.659	-4.9%
Armenian SSR[1)]	522	77	Yes	0.191	0.345	-8.5%
Moldovan SSR[1)]	409	55	Yes	0.552	0.724	-1.5%
Chechen-Ingush ASSR	120	31	Yes	0.622	0.817	-2.1%
Tuva ASSR	11	25	Yes	0.503	0.913	-1.0%
USSR Average	60	9	-	0.350	0.539	0.9%

Note: 1) Both Armenia and Moldova are treated as a unit of region in my dataset due to the smaller size compared to other oblasts/ASSRs.

The descriptive statistics of the most violent regions seem to be in line with the hypotheses I made above. The violent incidents may be positively correlated with the level of ethnic diversity while the increase in diversity reduces their probability. In order to test the hypotheses formally, I conducted a cross-sectional regression analysis summarised below.

$$Uprising_r = a_0 + a_1 FRAC_r + a_2 \Delta FRACnm_r + a_3 \log(Population)_r + X'_{r,t}\gamma + \varepsilon_{r,t}$$

Regional ethnic fractionalisation index ($FRAC_r$) and its change due to net migration ($\Delta FRACnm_r$) are included as two main explanatory variables[250]. If the hypotheses hold, the coefficient of $FRAC_r$ should be positive and that of $\Delta FRACnm_r$ should be negative. I include population measure as the number of uprisings is expected to be bigger in the regions with a larger population[251]. I also include other control variables, *X*, which may have affected the outbreak of violent incidents, including income, urbanisation rates, education, temperature,

[250] FRAC is later replaced by POLAR.

[251] I alternatively divide the dependent variable by population to capture this. The results do not differ significantly in both ways.

transport, etc. As to the regional income, I use official wage level data first and then replace it with food consumption as a proxy for real consumption. The results will report specifications including food consumption instead of official wages, as the former works better in general.

In addition, it should be considered that the relationship between conflict and ethnic fractionalisation may be non-linear, as some authors recognise (Collier 2000, 2001; Montalvo and Raynal-Qurol 2005; Janus and Riera-Crichton 2015). The possibility of conflict is not high when there is too a small share of the non-native population (low diversity) or there are too many different ethnic groups in a society (high diversity)[252]. I include the square of FRACs following Collier (2000)[253] to see if there is any non-linear relationship. A theory suggests that the coefficient on the square of FRAC should be negative because it is when there is a medium level of ethnic fractionalisation that ethnic violence becomes most intense. POLAR index, on the other hand, does not need the quadratic term. Since the ethnic polarisation level goes down by definition when the number of ethnic groups increases after 2, the non-linear relationship will not be observed in the relationship between POLAR and conflicts.

Since the dependent variable is the number of protests, which is a non-negative integer, it is not appropriate to use an OLS estimation. Poisson regression is usually used in the count variable model, but this is only applicable when the distribution of dependent variable has the same mean and variance. The variance of the protest data is far higher than its mean, i.e. the count variable is overdispersed (see Table 4-9), a possible alternative will be a negative binomial model[254]. As the uprising variable is not subject to excessive zero realisation[255], I will use a normal negative binomial estimation in the beginning. This issue can arise when I conduct an alternative regression as to the participants of ethnic protests, then I will need a zero-inflated model. The details will be provided in subsection d.

[252] Collier, P., 'Implications of ethnic diversity', *Economic policy* vol. 16 no. 32 (2001), pp. 150-1.
[253] Collier, 'Ethnicity (2000)', p.233
[254] Suesse, M., 'Adjusting the Size of Nations: Empirical Determinants of Separatism and the Soviet Breakup', *Journal of Comparative Economics* (forthcoming)
[255] The share of regions with no uprising is less than 10%.

Table 4-9. Summary statistics

Variable	Obs.	Mean	SD.	Min	Max
Uprisings	150	46.8	117.6	0	1036
Uprisings_Ethnic	150	37.0	122.8	0	1036
Protest Participants	150	659358	1634417	0	9917621
Protest Participants_Ethnic	150	671436	3572038	0	9917621
FRAC, 79	150	0.363	0.214	0.038	0.861
ΔFRAC7989	150	0.055	0.101	-0.309	0.346
POLAR, 79	150	0.550	0.264	0.743	0.982
Log population, 89	150	14.2	0.7	12.6	16.6
Log wage, 85	150	5.0	0.2	4.8	5.9
Log food consumption, 85	147	6.6	0.2	6.3	6.9
Urbanisation rate, 85	150	0.598	0.168	0.193	0.963
Number of students, 85, per 1000	147	182.2	48.3	115.7	280.7
Log passenger distance, bus	147	7.3	0.3	6.4	8.0
Temperature range (July-Jan), ºC	150	28.6	6.8	16.0	53.9

Note) Obs.: number of observations, SD: standard deviation.

c. Results

Table 4-10 shows the results from the baseline negative binomial where only diversity measures and population are included as independent variables. Column (1) reports the predicted sign and significance of all the coefficients. More fractionalised regions do seem to experience more frequent uprisings, while the probability of violence reduced when the diversity changes by net migration. When the protests and riots with nationalist causes are considered in Column (2), the result is similar with slightly higher coefficients of all variables.

The significant and negative effect of increasing diversity due to migration ($\Delta FRACnm7989$) on the frequency of violent events is worth more discussion. These results may be confirming the contact hypothesis, since the regions that experienced an influx of outsiders show the lower level of ethnic tension. However, this interpretation is only partly true since many non-Russian regions in the late-Soviet period exhibited decreasing ethnic diversity caused by mass out-migration of ethnic Russians. As we saw in the previous section, these

regions include Transcaucasia where the most frequent violent incidents were observed. In other words, the negative correlation between diversity and violence is not only driven by the regions experiencing an increase in diversity but also driven by the regions experiencing decreasing diversity. In the latter regions, the probability of ethnic violence increased because they became more homogenous. This is related to nationalist mobilisation in the regions where ethnic unmixing occurred due to ethnic Russians' out-migration. The nationalist elites were made easier to mobilise indigenous population where their share increased, and it led to more protests and riots[256].

One concern with the negative coefficient of $\Delta FRACnm7989$ is its endogeneity arising from reverse causality. That is, it might not be that increasing diversity makes the probability of conflicts low, but the conflicts encourage people to leave the regions and thus lower the diversity level. This issue can be somewhat significant as the period of FRAC changes (79-89) overlaps the period of ethnic violence (88-92) for about a year. Even if the periods are not overlapping, the tensions among ethnic groups can be a push factor driving their members away before the actual conflicts are realised.

Table 4-10. The effect of ethnic diversity on violence, baseline model

Dependent variable: # uprisings	(1) All	(2) Ethnic	(3) All	(4) Ethnic	(5) All	(6) Ethnic
FRAC79	1.15**	1.87***			-5.13**	-5.43*
	(2.55)	(2.87)			(-2.25)	(-1.65)
POLAR79			0.67*	1.29**		
			(1.71)	(2.27)		
$FRAC79^2$					8.23***	9.56**
					(2.79)	(2.24)
ΔFRACnm7989	-4.75***	-6.82***	-4.68***	-6.78***	-5.55***	-7.96***
	(-5.63)	(-5.26)	(-5.49)	(-5.20)	(-6.07)	(-5.62)
Log(population89)	1.00***	1.09***	0.97***	1.04***	1.17***	1.31***
	(7.94)	(5.96)	(7.59)	(5.60)	(8.45)	(6.42)
No. Obs.	150	150	150	150	150	150

Note: Results from negative binomial regressions; z-statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01.

[256] Beissinger, *Nationalist Mobilization*, pp.76-9

There is no direct way to control this issue in the cross-sectional estimation when there is no proper instrument, but I can indirectly see the extent to which this issue is a serious concern by trying alternative specifications. I do the same regressions on the sample of Russian *oblasts* (n = 73) and the sample excluding Transcaucasia and Central Asia (n = 103). These two samples are less affected by the mass out-migration of ethnic Russians which lowers the regional ethnic diversity, therefore not subject to reverse causality problem too much. The result, though not reported in this chapter, still reports negative coefficients on $\Delta FRACnm7989$ in both specifications. However, the significance of the variable lowers slightly, meaning that there might be the reverse causality issue existing in the full sample.

Column (3) and (4) report the results when ethnic polarisation is replaced with FRAC. The sign remains the same but the significance lowers, leaving POLAR becomes significant at 5% level for the ethnic protest sample. POLAR has been regarded to explain conflict better in the previous literature as discussed before. However, it was not the case in the Soviet context. In fact, coefficients on POLAR turned out to lose significance when included with other control variables later and removed in the specifications. This is because the high polarisation is observed when ethnic Russians are prevalent in a place where another titular group exist. However, the conflict in the late-Soviet period often occurred between non-Russian ethnic groups. When there are three or more equal-size groups reside in one region, polarisation level tends to go down by definition while fractionalisation level goes up. A potential alternative for normal POLAR can be the polarisation index revised to exclude ethnic Russians, which was suggested in the previous section. POLAR without ethnic Russians may be bigger when two non-Russian ethnic groups are dominant in a region and conflicting with each other, therefore may capture the effect of polarisation better. In practice, however, this revised index did not turn out to be significant, because first, there is not much variation in this variable for the Russian regions where Russians account for 80-90 percent of the population, and second, the presence of Russians had different impact between Baltic, Transcaucasia and Central Asia regions which cannot be generalised by the results of econometric specifications. Therefore, the results from

the specifications using POLAR and POLAR excluding Russians were not presented and the discussion in this chapter will focus on the effect of FRAC.

When the quadratic term is introduced in Column (5) and (6), the results do not seem to support the arguments of the previous literature. Unlike what the theory suggests, the relationship between ethnic diversity and violence is U-shape. The chance of having violent incidents initially decreases as the region becomes more diverse, but it increases after the diversity level reaches a certain point.

The results not consistent with the theory can be partly explained in the Soviet context. The highly homogenous region, again, is where the ethnic elites can most easily mobilise indigenous people and organise nationalist protests in the Soviet period[257]. Armenia and Nakhichevan ASSR are two good examples of the regions with low ethnic diversity experiencing ethnic tensions[258]. Violence observed in the regions with very high ethnic diversity can also be understood as a Soviet specific phenomenon. Looking at the list of the regions experienced major ethnic conflicts[259], those conflicts often occurred between two non-Russian nationalities who occupied one region. For example, in Abkhazia, the tension between Georgians and Abkhazians, who were supported by Armenian and Russian governments, escalated to the point of war breaking out in 1992[260]. The shares of Georgians, Abkhazians, Armenians and Russians in Abkhaz ASSR in 1979 were 0.44, 0.17, 0.15, and 0.16, respectively, which makes its FRAC 0.717, amongst the highest in the Soviet regions. Also, Chechen-Ingush ASSR, which was subject to two major civil wars between Chechens and ethnic Russians and between Ossetians and the Ingush, had very high ethnic diversity with the FRAC of 0.622 in 1979[261]. Therefore, the U-shape relationship between ethnic diversity and conflicts may not be what is surprising in the Soviet context.

[257] Beissinger, *Nationalist Mobilization*, pp.76-9
[258] FRACs of Armenia and Nakhichevan ASSR were 0.191 and 0.085, respectively, in 1979. Table 4-7.
[259] The list can be found in Section II
[260] Petersen, A., 'The 1992-93 Georgia-Abkhazia War: A Forgotten Conflict', *Caucasian Review of International Affairs* vol. 2 no. 4 (2008), pp.187-199
[261] The share of Chechens, the Ingush and ethnic Russians were 0.52, 0.12 and 0.29, respectively in 1979

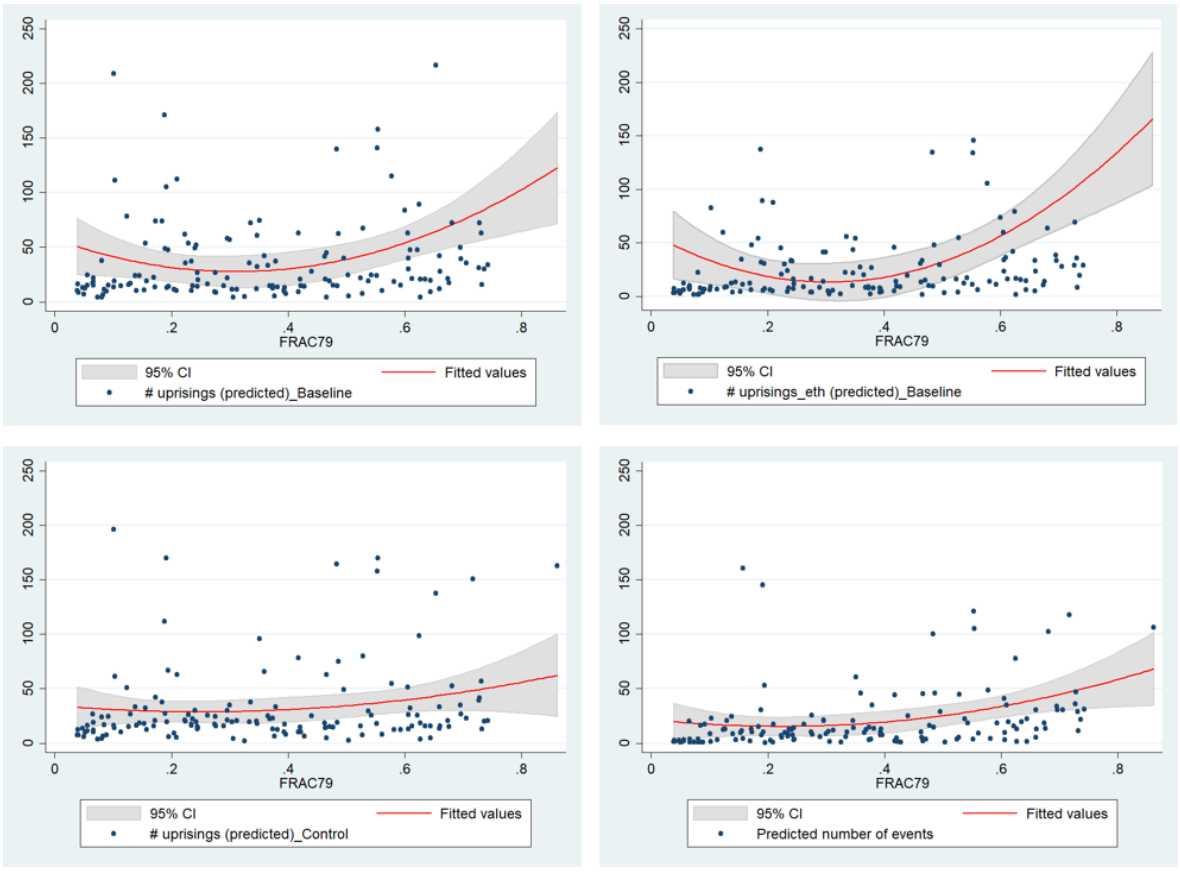
Table 4-11. The effect of ethnic diversity on violence, controls added

Dependent variable: # uprisings	(1) Ethnic	(2) Ethnic	(3) Ethnic	(4) Ethnic	(5) Ethnic	(6) Ethnic	(7) All	(8) All
FRAC	2.46*** (3.40)	1.43* (1.95)	0.74 (0.92)	-6.37** (-2.00)	-7.03** (-2.30)	-5.34 (-1.53)	0.49 (0.87)	-4.91** (-2.03)
$FRAC^2$				11.58*** (2.82)	11.01*** (2.84)	8.05* (1.78)		7.19** (2.28)
ΔFRACnm	-6.40*** (-5.56)	-6.00*** (-4.93)	-5.89*** (-4.71)	-7.70*** (-6.23)	-7.41*** (-5.57)	-7.10*** (-5.00)	-4.12*** (-4.90)	-4.87*** (-5.40)
Population	0.94*** (5.43)	1.15*** (5.95)	1.02*** (5.21)	1.14*** (6.16)	1.30*** (6.97)	1.17*** (5.54)	0.89*** (6.24)	1.00*** (6.84)
Food Consumption	2.22** (2.41)	4.62*** (4.50)	3.26*** (3.02)	2.17** (2.47)	4.61*** (4.74)	3.59*** (3.35)	1.52* (1.95)	1.93** (2.48)
Urbanisation		-1.29 (-1.21)	-0.35 (-0.32)		-1.02 (-1.04)	-0.57 (-0.54)	0.63 (0.73)	0.58 (0.71)
Education		0.02*** (3.56)	0.02*** (3.64)		0.02*** (3.72)	0.02*** (3.86)	0.01 (1.60)	0.01* (1.80)
Transport			0.85 (1.11)			1.07 (1.40)	-0.37 (-0.79)	-0.30 (-0.65)
Weather			-0.06*** (-3.34)			-0.04** (-1.97)	-0.05*** (-3.41)	-0.03** (-2.00)
No. Obs.	147	147	147	147	147	147	147	147

Note: Results from negative binomial regressions; z-statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01.

Table 4-11 reports the results when including control variables. The addition of controls does not change the result from the baseline regression much, though FRAC seems to lose its significance when more controls are added (Column (3)). However, the square of FRAC keeps showing positive and significant coefficient, confirming the U-shape relationship between fractionalization and violence. This relationship is visually presented in Figure 4-4, depicting the scatter plot of the number of predicted violent incidents and FRAC79, and the quadratic fitted curve obtained from the baseline and control added specifications. Though the curvature got slightly flat when the control variables are added, the fitted curve clearly shows U-shape with the highest number of uprisings at two extremes. The probability of conflicts decreases until the FRAC reached around 0.38 and increases afterwards. It can be also understood that when the FRAC is lower than the tipping point, the decreasing ethnic diversity would raise the frequency of ethnic violence.

Figure 4-4. Non-linear relationship between FRAC and the number of uprisings



Note: Regions with over 250 demonstrations are omitted in the graph but included in the regressions for the prediction. Shaded part is 95% confidence intervals.

Looking at other control variables, food consumption, as a proxy for income level, turns out to be positively correlated with violence. Though it is argued in the previous literature that the high-income regions are less prone to civil wars[262], this is not the case in the Soviet sample. This may be related to the fact that the dependent variable is the number of protests organized in the regions. If people have income below subsistence level, it would not be easier to participate in protests and demonstrations. Assuming the non-monotonic relationship between income and protest participants, the coefficient of income variable can be positive in the low-income sample. Related to this, the regions with more education experience more frequent protests and riots, as education can be used as a tool for ethnic mobilization. Weather, on the other hand, has a negative effect as it would be difficult for people to gather when the weather conditions are adverse.

[262] Alesina and La Ferrara, 'Ethnic diversity', p.770

d. Alternative models: Size of violent incidents and Civil wars

I have examined the effect of ethnic diversity on the number of uprisings so far. However, not all uprisings have the same number of participants. Some events draw more attention than others, so it is important to take the size of the event into account. Also, it will be useful to see if the ethnic diversity affects the major conflicts and civil wars involving military actions. In this section, I will first see the effect of diversity on the size of violent incidents, then on the outbreak of the civil wars.

Beissinger's dataset identifies the number of participants in the protests[263]. This time I use the number of protest participants as a dependent variable, again separating those who involved in the protests with nationalist demand. When only the protests, excluding riots, are considered, especially for the nationalism-related sample, the specification may be subject to an excessive zero problem[264]. Following Suesse (forthcoming), I adopted a zero-inflated negative binomial regression model using protest repression to predict zero realization[265]. The number of arrests in protest is used as a proxy for repression, and the first stage logit regression shows that the protest is less likely to occur where there is a higher chance for the protestors to be arrested. The result from the Vuong test shows that the zero-inflated model is preferred to standard negative binomial at 1% significance level.

The results from zero-inflated negative binomial regression are reported in Table 4-12. The coefficients of FRAC variables are significant only when the quadratic term is introduced, whereas ΔFRACnm has strong effect throughout. The sign and significance of the coefficients on other control variables are not too different from the results of the previous specification. This confirms that ethnic diversity affects the size of violent incidents, as well as their frequency.

[263] Data of riot participants is not complete.
[264] About 35% of the regions did not see any protest related to nationalist demand.
[265] Suesse, 'Adjusting the size', pp.9-10

Table 4-12. The effect of ethnic diversity on protest participants

Dep. var: Protest participants	(1) Ethnic	(2) Ethnic	(3) Ethnic	(4) Ethnic	(5) Ethnic	(6) Ethnic	(7) All	(8) All
FRAC79	0.11 (0.13)	1.58 (1.33)	-1.67 (-1.12)	-14.18*** (-2.63)	-19.03*** (-3.74)	-17.00*** (-3.02)	-0.15 (-0.20)	-4.72 (-1.58)
$FRAC79^2$				19.28** (2.57)	28.61*** (4.00)	21.47*** (2.68)		6.18 (1.56)
ΔFRACnm7989	-7.75*** (-3.75)	-7.55*** (-4.62)	-5.42** (-2.39)	-9.74*** (-4.06)	-11.27*** (-6.15)	-9.01*** (-3.68)	-4.34*** (-3.87)	-5.00*** (-4.10)
Population	1.63*** (5.04)	1.96*** (5.35)	0.96*** (2.88)	2.16*** (5.98)	2.10*** (7.12)	1.31*** (3.48)	1.14*** (6.07)	1.18*** (6.44)
Food Consumption		4.15** (2.36)	3.40** (2.25)		5.07*** (3.01)	5.39*** (3.53)	1.54* (1.67)	1.86** (1.99)
Urbanisation		-4.84*** (-2.81)	-0.15 (-0.09)		-3.56** (-2.44)	-0.50 (-0.33)	1.22 (1.19)	1.30 (1.32)
Education			0.03*** (2.92)			0.03*** (3.23)	0.01* (1.90)	0.01* (1.83)
Transport			-1.06 (-0.90)			-0.36 (-0.28)	0.35 (0.54)	0.45 (0.71)
Weather			-0.16*** (-5.11)			-0.10** (-2.38)	-0.04** (-2.21)	-0.03* (-1.71)
No. Obs.	147	147	147	147	147	147	147	147

Note: Results from zero-inflated negative binomial regressions; z-statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01.

Lastly, I attempt to document the effect of ethnic diversity on the outbreak of civil wars. The late 80s and early 90s saw the major armed conflict in many Russian and non-Russian regions, besides protests and riots. Tishkov (1999) classified these violent incidents in to three categories: (1) six violent conflicts of considerable duration, with organized front lines, the participation of regular troops and paramilitary formations, and the use of heavy weapons (Nagorno-Karabakh, South Ossetia, Transdniestria, Tajikistan, Abkhazia, Chechnya), (2) four violent clashes (or riots) of short duration and with non-organized parties and mob violence (Sumgait and Baku, Fergana, Osh, Ingush-Ossetian), and (3) ten nonviolent conflicts with political, ethnic, religious, and clan tensions and confrontations (Yakutia, Tatarstan, Tuva, Kabardino-Balkaria, Karachevo-Cherkessia, Daghestan in Russia; Alma-Ata in Kazakhstan;

Crimea in Ukraine; Gagauzia in Moldova; Dushanbe in Tajikistan)[266].

I use this list of major conflicts to produce a conflict dummy, coding 1 for the regions which experienced any conflicts and 0 otherwise, then regress this on the FRAC and other control variables. Since the dependent variable is a dummy with 1 and 0, I conducted Probit regressions instead of OLS. Non-linear relationship is not considered here as Probit regression would not be appropriate to see the effect of quadratic terms.

The results in Table 4-13 reports that the FRAC has positive and significant effects on the chance of civil war occurring, confirming the importance of ethnic diversity in explaining ethnic conflict. This result does not change when the control variables are included in the last three columns. Changing ethnic diversity still shows a negative effect, but the significance is not as high as in the protest/riot specification. Other controls, not reported in the table, do not give much information as most of them turn out to be insignificant.

Table 4-13. The effect of ethnic diversity on military conflicts

Dep. var: Conflict (0,1)	(1) Ethnic	(2) Ethnic	(3) Ethnic	(4) Ethnic	(5) Ethnic	(6) Ethnic
FRAC79	2.46*** (3.35)		2.63*** (3.35)	2.43*** (2.73)		2.54*** (2.77)
ΔFRACnm7989		-2.29* (-1.82)	-2.47* (-1.92)		-2.29* (-1.74)	-2.44* (-1.85)
Population89	0.43** (1.98)	0.23 (1.17)	0.42* (1.91)	0.30 (1.18)	0.22 (0.93)	0.33 (1.28)
Food Consumption	-1.31 (-1.50)	-1.67** (-1.97)	-1.19 (-1.33)	-0.04 (-0.03)	-0.03 (-0.03)	0.16 (0.13)
Other controls	No	No	No	Yes	Yes	Yes
No. Obs.	147	147	147	147	147	147

Note: Results from Probit regressions. t-statistics in parentheses, * p<0.10, ** p<0.05, *** p<0.01.

[266] Tishkov, V., "Ethnic Conflicts in the Former Ussr: The Use and Misuse of Typologies and Data." *Journal of Peace Research* vol. 36 no. 5 (1999), p.576

IV. Conclusion

In this chapter, I have examined the changing ethnic diversity trend in the Soviet period and its impact on ethnic violence occurred just before the collapse of the Soviet Union. The contributions of the results presented in this chapter can be three-fold.

Firstly, I review the ethnic diversity of the USSR, not at the country level but at the regional level. Country-level ethnic fractionalisation has some mathematical problems when two distinctive ethnic groups are concentrated in two different regions[267]. This issue has been addressed in my regional fractionalisation data. The average of regional ethnic diversity in the Soviet Union was 0.354 in 1989, having risen from 0.345 in 1959. This is far lower than 0.670, which is the figure obtained from Taylor and Hudson (1972) and often cited by the literature as the ethnic fractionalisation index of the Soviet Union[268]. This discrepancy is due to the regional concentration of different ethnic groups, usually in their national territory, lowering the local-level FRACs relative to state-level FRACs.

Secondly, it is shown that the channel through which the regional ethnic diversity was shaped is migration in the direction of ethnic mixing during the late-Soviet period. A counterfactual ethnic diversity level was estimated using data constructed in the previous chapters. As a result, the contribution of migration in all the Soviet *raions,* except Transcaucasia and Moldavia, was positive and raised the regional ethnic diversity levels during the last decade of the Soviet period. In contrast, ethnic unmixing was clearly seen during the post-Soviet period. The change in FRAC due to migration was negative in all regions with no exception in the period between 1989 and 2000, meaning that ethnic migration after the collapse contributed to the homogenisation of post-Soviet states.

Lastly, this chapter reveals the relationship between the diversity and violence in the Soviet context, adding confirmation to the literature arguing the negative effect of ethnic

[267] Bleaney and Dimico, 'Ethnic diversity', p.366
[268] Taylor and Hudson, *World Handbook*, p.272

diversity on social outcomes. To be specific, the coefficients of ethnic diversity variables were positive and significant in explaining the frequency and the size of the violent incidents as well as raising the probability of civil wars. However, the change in ethnic diversity may have different implications, as the increase in FRAC turns out to have a negative impact on ethnic violence. This can be partly explained by 'contact hypothesis', which argues that interethnic interactions reduce conflict, but also related to the ethnic mobilisation in the regions where ethnic Russians left. In addition, the non-linear relationship between diversity and conflict is derived from quadratic specifications. Unlike the prediction of the previous literature, however, the chance of conflicts outbreaking was highest when the regions are very homogenous and very fragmented, resulting in a U-shape relationship. This can be understood in the Soviet context as discussed in Section III.

Returning to the question posed early in this chapter, it is not clear whether the ethnic migration planted the seed for its own destruction. The trend of migration is confirmed to have changed from ethnic mixing to unmixing in the post-Soviet transition period. However, the ethnic diversity which had increased due to the migration in the direction of ethnic mixing did not cause the ethnic violence at the end of the Soviet period, but the effect was actually the opposite. What is clearly seen in this chapter, however, is that the regions with the high initial level of ethnic diversity are prone to the outbreak of ethnic conflicts.

Chapter 5. Limitations and Areas for Further Research

In this thesis, I have studied the migration patterns shown among the members of various ethnic groups residing in the Soviet and post-Soviet space during the transition period. For the first time in the literature, I constructed a database as to the regional net migration of the Soviet national groups and investigated how migration, ethnic diversity, and violent incidents in the Soviet Union have influenced one another. To be specific, the regional migration was significantly affected by the presence of co-ethnics in the potential destinations and it became a crucial factor in shaping the ethnic diversity of the sending and receiving regions. I argued that the increasing ethnic fractionalisation contributed to the outbreaks of ethnic conflicts and nationalist movements and, in turn, to the independence of the union republics.

Despite the novel contributions of the main chapters of this thesis, several limitations seem necessary to be addressed. These limitations, undoubtedly, will be the sources for the further research. In this last chapter, I will point out the major limitations which may weaken the conclusions of this thesis and discuss how these can be overcome in the future studies.

Firstly, room for improvement remains in the data construction process of Chapter 2. I used aggregate data on self-reported ethnicity from census statistics to calculate net migration. As discussed in Section II, however, the accuracy of net migration data derived by a residual method will be compromised if respondents do not report their ethnicity consistently in two consecutive censuses. If one changes their reported ethnic identity from Kazakhs to Russians between two censuses, the population of Russians will increase even if no Russian was born or moved to the region. This phenomenon is called ethnic re-identification by Anderson and Silver (1986), who suggested that around 60,000 ethnic minorities are Russified, i.e. changed their ethnic identity to Russian, between 1959 and 70[269]. The margin of error should not be very large for the Soviet dataset, however, since Russification was mostly among non-titular minorities

[269] Anderson and Silver, 'Estimating Russification (1983)', pp.461

and its extent was small relative to the whole Russian population. I also suggested that the institutionalisation of nationalities made it hard for Soviet people to change their national identity at their will.

For the post-Soviet period, the issue of ethnic re-identification can be more problematic since people may have more incentives to change their nationality when facing discrimination against non-titular groups after the independence of FSU states. Even though some authors like Rapawy (1997) [270], Heleniak (2004)[271] and Duncan (2010)[272] discussed the extent of post-Soviet ethnic re-identification for ethnic Russians and Ukrainians, there is little information as to the actual numbers. It is impossible to determine the extent of re-identification with aggregate level data, since self-reported ethnic identity is not verified against supporting documentation[273].

This may possibly remain as a pitfall of my database and correction of this issue will be beyond the scope of this thesis. Ethnic unmixing, which was the main implications of the migration in the post-Soviet decade, might have been the result of people re-identifying themselves as the titular nationality of the state where they currently live in the absence of actual moving. Having said that, changing ethnic identity, as well as migration to homelands, will emphasise the importance of ethnic affinity determining the welfare of people and affecting their behaviours. People respond to lowering living standards in the place they currently stay either by moving out of it or changing their self-reported ethnic identity as it pleases.

Future studies will be able to address this issue in several ways. The most obvious channel of changing one's ethnicity is interethnic marriages. According to Arutyunyan and Bromley (1986), around 12 per cent of total Soviet families were ethnically mixed and their children choose either of their parents' nationalities at the age of 16[274]. Kaiser (1994) also

[270] Rapawy, S., 'Ethnic reidentification in Ukraine', *US Bureau of the Census IPC Staff paper* no. 90 (1997)
[271] Heleniak, T., 'Migration of the Russian diaspora after the breakup of the Soviet Union', *Journal of International Affairs* vol. 57 no. 2 (2004), pp. 99-117
[272] Arel, D., and Ruble, B., *Rebounding Identities: The Politics of Identity in Russia and Ukraine*. (Washington DC. 2006)
[273] Heleniak, 'Migration of Russian diaspora (2004)', p.114
[274] Recited from Gorenburg, 'Rethinking Interethnic Marriage', p.147

discusses the effect of intermarriage on the choice of nationality in the Soviet period[275]. Likewise, examining the extent of intermarriage during the post-Soviet transition period can hint the extent of ethnic re-identification as the FSU censuses contain some information as to the proportion of families with mixed nationalities. There are no statistics which reveal the ethnicity of mixed marriage couples in aggregate level data and microdata is not available for the Soviet and Russian censuses, either[276]. Instead, one can look at the Russia Longitudinal Monitoring Survey (RLMS) which Higher School of Economics, Moscow, has conducted since 1994 on the sample of around 3,500 households. Since the respondents are required to reveal their ethnic identity, it is possible to check if he or she reports their ethnicity consistently over a period, as well as to see if married couples have the same ethnicity. As there is no research investigating the extent of ethnic re-identification found from the list of publications using RLMS[277], it is open to the future study.

Secondly, while the main analyses of this thesis focus on the general trend of migration and ethnic diversity in the whole area of the USSR and FSU states, in-depth analysis about each ethnic group in each region would be necessary to capture the different implications of ethnicity in regions with different environments. For example, Section IV of Chapter 3 shows that the ethnic groups included in the sample respond to economic and ethnic factors differently. However, it was not possible in this thesis to look at each of the 35 titular ethnic groups and major ethnic minorities separately. Related to this, I have focused on the usefulness of the Soviet dataset in answering common questions of the migration and ethnic diversity literature and consequently, the context of the Soviet Union or other FSU states were sometimes disregarded. In fact, not many Russian or FSU republic studies were referred to in this thesis other than primary sources and a few studies quoted in the Western research. Admittedly, this may leave the interpretations of the results of this thesis inapplicable to specific regions or ethnic groups

[275] Kaiser, *Geography of Nationalism,* pp.317-314
[276] IPUMS international, however, provides microdata for some FSU countries, such as Belarus (1999), Ukraine (2001) and Kyrgyz Republic (1999, 2000).
[277] The list can be found on the following link: https://www.cpc.unc.edu/projects/rlms-hse/publications

without further investigation.

To investigate the case studies of 15 different states which use different languages will be a challenge even to the researchers with the background of Russia or any FSU states. However, the database constructed in this thesis can be easily expanded towards other groups who settled in the former Soviet Union states and will be available to the local researchers who are interested in finding quantitative evidence of late- and post-Soviet migration patterns of their respective ethnic groups.

Lastly, the scope of this thesis is confined to the investigation of the Soviet and post-Soviet space, even though the relationship between migration and ethnic diversity could be understood in the broader context of globalisation. Therefore, it is possible to conduct comparative analyses investigating the unique and universal characteristics of Soviet migration with regard to other ethnically heterogeneous countries or communities, such as the US or the EU. It would be an interesting subject to see the difference in attitudes of the authorities towards immigrants or non-natives between the US and the USSR since these two had very different views on the nationality problem. Also, in a historical context, other multi-ethnic empires, such as Hapsburg Monarchy, can be an interesting subject of comparison.

The comparative analysis can be done regarding the population redistribution under the totalitarian regimes. For example, it is possible to delve into the similarities and differences between the Soviet and South African migration history. The history of segregating ethnic groups and forcing/inducing its people to migrate based on ethnicity is what the Soviet Union and South Africa have in common. Segregation of Jews under the Nazis and their repatriation afterwards can be compared to the Soviet experience.

As the literature about the two-way relationship between ethnicity and migration has been growing recently, the Soviet and post-Soviet cases explored in this thesis will be a valuable addition when compared to well-studied cases of other countries.

Bibliography

Primary Source

Goskomstat USSR (1984) *Chislennost' i sostav naseleniya SSSR: Po dannym Vsesoyuznoy perepisi naseleniya 1979 goda (The size and composition of the population of the USSR: according to All-Union census in 1979)*, Moscow: *Finansy i statistika*

Goskomstat USSR (1988) *Naseleniye SSSR 1987: Statisticheskiy sbornik (The Population of USSR 1987: Statistical Yearbook)*, Moscow: *Finansy i statistika*

Goskomstat USSR (1989) *Naseleniye SSSR 1988: Statisticheskiy sbornik (The Population of USSR 1988: Statistical Yearbook)*, Moscow: *Finansy i statistika*

Goskomstat USSR (1990) *Chislennost' i sostav naseleniya SSSR: Po dannym Vsesoyuznoy perepisi naseleniya 1989* goda (The size and composition of the population of the USSR: according to All-Union census in 1989), Moscow: *Finansy i statistika*, electronic data is retrieved from East View Publications (2011): *USSR 1989 Population Census*. GESIS Data Archive, Cologne. ZA8463 Data file Version 1.0.0

Goskomstat USSR (1990) *Demograficheskii ezhegodnik, SSSR: 1990 (Demographic Yearbook, USSR: 1990)*, Moscow: *Finansy i statistik,*

Goskomstat USSR (1991) *Narodnoe khozyaistvo SSSR v. 1990 goda (The national economy of the USSR in 1990)*, Moscow: *Finansy i statistika*

Rosstat (1993-2010) *Demograficheskiy yezhegodnik Rossii: Statisticheskiy sbornik (Demographic Yearbook of Russia: Statistical Handbook)*. Moscow: *Goskomstat Rossii*

Rosstat (2002) *Regiony Rossii: Osnovnyye kharakteristiki subyektov Rossiyskoy Federatsii (Regions of Russia: The main characteristics of the Russian Federation)*. Moscow: *Goskomstat Rossii*

CISstat (2006), *15 years of the Commonwealth of Independent States ,1991-2005: Statistical abstract,* Moscow: Interstate statistical committee of the Commonwealth of Independent States

CISstat (2008) *Official statistics of the countries of the Commonwealth of Independent States*. Moscow, Russia: Interstate Statistical Committee of the Commonwealth of Independent States

Institute of Demography, Russia Higher School of Economics, "USSR Population by nationality", *Demoscope Weekly,* retrieved from http://demoscope.ru/weekly/ssp/census_types.php?ct=6%27

Ilkhamov, A. and Zhukova, L., 2002. *Etnicheskii Atlas Uzbekistana (Ethnic Atlas of Uzebekistan)*. Institut Otkrytoe Obshestvo, Tashkent: Fond Sodeistvia Uzbekistan.

Beissinger, Mark R. Submitted., “Mass Demonstrations and Mass Violent Events in the Former USSR, 1987-1992 [Event databases used for the analysis in *Nationalist Mobilization and the Collapse of the Soviet State*]”, Retrieved from https://scholar.princeton.edu/mbeissinger/publications

Secondary Source

Akerlof, George A, and Rachel E Kranton. "Economics and Identity." *Quarterly journal of Economics* (2000): 715-53.

———. "Identity and the Economics of Organizations." *The Journal of Economic Perspectives* 19, no. 1 (2005): 9-32.

———. "Identity Economics." *The Economists' Voice* 7, no. 2 (2010).

Alesina, Alberto, and Eliana La Ferrara. "Ethnic Diversity and Economic Performance." *Journal of economic literature* 43, no. 3 (2005): 762-800.

Alesina, Alberto, and Ekaterina Zhuravskaya. "Segregation and the Quality of Government in a Cross Section of Countries." *American Economic Review* 101, no. 5 (2011): 1872-911.

Alesina, A., Harnoss, J., and Rapoport, H., ‘Birthplace diversity and economic prosperity’, *Journal of Economic Growth* vol. 21 no. 2 (2016), pp.101-138

Ali, M., *The collapse of the Soviet Union: the nationality causes,* New Delhi (2004)

Allen, Robert C. "The Rise and Decline of the Soviet Economy." *Canadian Journal of Economics* (2001): 859-81.

Allworth, Edward. "A Theory of Soviet Nationality Policies." In Huttenbach (ed.), *Soviet Nationality Policies: Ruling Ethnic Groups in the USSR* (1990): 24-46.

Anderson, Barbara A., and Brian D. Silver. "Estimating Russification of Ethnic Identity among Non-Russians in the Ussr." *Demography* 20, no. 4 (1983): 461-89.

———. "Demographic Sources of the Changing Ethnic Composition of the Soviet Union." *Population and Development Review* (1989): 609-56.

———. "Growth and Diversity of the Population of the Soviet Union." *The ANNALS of the American Academy of Political and Social Science* 510, no. 1 (1990): 155-77.

Andrienko, Yuri, and Sergei Guriev. "Determinants of Interregional Mobility in Russia." *Economics of transition* 12, no. 1 (2004): 1-27.

Aspaturian, V., "The non-Russian nationalities." In *Prospects for Soviet society* (1968), pp. 35-63

Arel, Dominique. "Demography and Politics in the First Post-Soviet Censuses." *Population* 57, no. 6 (2002): 801-27.

Arel, D., and Ruble, B., *Rebounding Identities: The Politics of Identity in Russia and Ukraine*, Washington D.C. (2006)

Azrael, Jeremy R, and Emil A Payin. "Cooperation and Conflict in the Former Soviet Union: Implications for Migration." (1996).

Belot, Michèle VK, and Timothy J Hatton. "Immigrant Selection in the OECD." *The Scandinavian Journal of Economics* 114, no. 4 (2012): 1105-28.

Bellini, Elena, Gianmarco IP Ottaviano, Dino Pinelli, and Giovanni Prarolo. "Cultural diversity and economic performance: evidence from European regions." In Crescenzi, R., and Percoco, M. (ed.) *Geography, institutions and regional economic performance*, pp. 121-141. Springer, Berlin, Heidelberg (2013)

Beissinger, M., *Nationalist Mobilization and the Collapse of the Soviet State,* Cambridge University Press (2002)

Bernard P., *Planning in the Soviet Union*, Elsevier, London (2013)

Bisin, Alberto, Eleonora Patacchini, Thierry Verdier, and Yves Zenou. "Ethnic Identity and Labour Market Outcomes of Immigrants in Europe." *Economic Policy* 26, no. 65 (2011): 57-92.

Bleaney, Michael, and Arcangelo Dimico. "Ethnic Diversity and Conflict." *Journal of Institutional Economics* 13, no. 2 (2017): 357-78.

Borjas, George J. "Self-Selection and the Earnings of Immigrants." National Bureau of Economic Research Cambridge, Mass., USA, 1987.

Bove, Vincenzo, and Leandro Elia. "Migration, Diversity, and Economic Growth." *World Development* 89 (2017): 227-39.

Brown, Annette N. "The Economic Determinants of Internal Migration Flows in Russia During Transition." (1997).

Brubaker, W Rogers. "Citizenship Struggles in Soviet Successor States." *International migration review* (1992): 269-91.

———. "Nationhood and the national question in the Soviet Union and post-Soviet Eurasia: An institutionalist account." *Theory and society* 23, no. 1 (1994): 47-78.

———. "Migrations of Ethnic Unmixing in the "New Europe"." *The International migration review* 32, no. 4 (1998): 1,047-65.

Buckley, Cynthia. "The Myth of Managed Migration: Migration Control and Market in the Soviet Period." *Slavic Review* 54, no. 4 (1995): 896-916.

Buckley, Cynthia J, Blair A Ruble, and Erin Trouth Hofmann. *Migration, Homeland, and Belonging in Eurasia*. Woodrow Wilson Center Press, 2008.

Clark, Ximena, Timothy J Hatton, and Jeffrey G Williamson. "Explaining US Immigration, 1971-1998." *The Review of Economics and Statistics* 89, no. 2 (2007): 359-73.

Clarke, Simon. *The Formation of a Labour Market in Russia*. Edward Elgar Publishing, 1999.

Codagnone, Cristiano. "The New Migration in Russia in the 1990s." In Koser, Khalid and Lutz, Helma (Eds.), *The New Migration in Europe*, 39-59: Springer, 1998.

Collias, Karen A. "Making Soviet citizens: Patriotic and internationalist education in the formation of a Soviet state identity." In Huttenbach, H. (ed.), *Soviet Nationality Policies: Ruling Ethnic Groups in the USSR* (1990): 73-93.

Collier, Paul. "Ethnicity, politics and economic performance." *Economics & Politics* 12, no. 3 (2000): 225-245.

Collier, Paul. "Implications of ethnic diversity." *Economic policy*16, no. 32 (2001): 128-166.

Constant, Amelie F, and Klaus F Zimmermann. *International Handbook on the Economics of Migration*. Edward Elgar Publishing, 2013.

———. "Measuring Ethnic Identity and Its Impact on Economic Behavior." *Journal of the European Economic Association* 6, no. 2-3 (2008): 424-33.

De Tinguy, Anne. "Ethnic Migrations of the 1990s from and to the Successor States of the Former Soviet Union:'Repatriation'or Privileged Migration." *Diaspora and ethnic migrants: Germany, Israel and post-Soviet Space in comparative perspective. London: Frank Cass* (2003): 112-29.

Dmitrieva, Oksana, and R Antony French. *Regional Development: The USSR and After*. Vol. 1: UCL Press London., 1996.

Dominitz, Yehuda. "Israel's Immigration Policy and the Dropout Phenomenon." In *Russian Jews on Three Continents: Migration and Resettlement*, 113-27: Frank Cass & Co., 1997.

Easterly, William, and Ross Levine. "Africa's Growth Tragedy: Policies and Ethnic Divisions." *The Quarterly Journal of Economics* (1997): 1203-50.

Esteban, J., and Ray, D., 'Linking conflict to inequality and polarization', *American Economic Review* vol. 101 no. 4 (2011): 1345-74.

Fearon, James D. "Ethnic and Cultural Diversity by Country." *Journal of economic growth* 8, no. 2 (2003): 195-222.

Steven Fish, M., and Matthew Kroenig. "Diversity, Conflict and Democracy: Some Evidence from Eurasia and East Europe." *Democratization* 13, no. 5 (2006): 828-842.

Frey, William H, and Kao-Lee Liaw. "Migration within the United States: Role of Race-Ethnicity [with Comments]." *Brookings-Wharton papers on urban affairs* (2005): 207-62.

Gerber, Theodore P. "Regional Economic Performance and Net Migration Rates in Russia, 1993–

20021." *International Migration Review* 40, no. 3 (2006): 661-97.

Gibson, James R. "Interregional Migration in the USSR, 1981–1985 and 1971–1975." *The Canadian Geographer/Le Géographe canadien* 35, no. 2 (1991): 143-56.

Gören, Erkan. "How ethnic diversity affects economic growth." *World Development* 59 (2014): 275-297.

Gorenburg, D. 'Rethinking Interethnic Marriage in the Soviet Union', *Post-Soviet Affairs* vol. 22 no.2 (2006): 145-165

Gurak, Douglas T, and Mary M Kritz. "The Interstate Migration of Us Immigrants: Individual and Contextual Determinants." *Social Forces* 78, no. 3 (2000): 1017-39.

Guriev, Sergei, and Elena Vakulenko. "Breaking out of Poverty Traps: Internal Migration and Interregional Convergence in Russia." *Journal of Comparative Economics* (2015).

Hatton, Timothy J. "A Model of UK Emigration, 1870-1913." *The Review of Economics and Statistics* (1995): 407-15.

Hatton, Timothy J, and Andrew Leigh. "Immigrants Assimilate as Communities, Not Just as Individuals." *Journal of Population Economics* 24, no. 2 (2011): 389-419.

Hatton, Timothy J., and Jeffrey G. Williamson. *The Age of Mass Migration: Causes and Economic Impact.* Oxford University Press on Demand, (1998).

———. "What Fundamentals Drive World Migration?". In *Poverty, International Migration and Asylum*, 15-38: Springer, 2005.

Heitman, Sidney. "Soviet Emigration in 1990: A New "Fourth Wave"?". *Innovation: The European Journal of Social Science Research* 4, no. 3-4 (1991): 373-89.

———. "Soviet Emigration since 1985." *Nationalities Papers* 22, no. 1 (1994): 247-61.

Heleniak, Timothy. "The Changing Nationality Composition of the Central Asian and Transcaucasian States." *Post-Soviet Geography and Economics* 38, no. 6 (1997a): 357-78.

———. "Internal Migration in Russia During the Economic Transition." *Post-Soviet Geography and Economics* 38, no. 2 (1997b): 81-104.

———. "The End of an Empire: Migration and the Changing Nationality Composition of the Soviet Successor States." *Diasporas and ethnic migrants. Germany, Israel and Post-Soviet successor states in comparative perspective* (2003): 115-40.

———. "Migration of the Russian Diaspora After the Breakup of the Soviet Union." *Journal of International Affairs* 57, no. 2 (2004): 99-117

———. "An Overview of Migration in the Post-Soviet Space." *Migration, Homeland and Belonging in Eurasia* (2008): 29-67.

———. "International Comparisons of Population Mobility in Russia." *International Journal of Population Research* 2012 (2012).

Horwitz, Sujin K., and Irwin B. Horwitz. "The effects of team diversity on team outcomes: A meta-analytic review of team demography." *Journal of management* 33, no. 6 (2007): 987-1015.

Huttenbach, Henry R. "Introduction: Towards a Unitary Soviet State: Managing a multinational society, 1917-1985." Huttenbach, H. (ed.), *Soviet Nationality Policies: Ruling Ethnic Groups in the USSR*. Londres: Mansell (1990): 1-8.

———. (ed.), *Soviet Nationality Policies: Ruling Ethnic Groups in the USSR*. Londres: Mansell (1990)

Jones, Ellen, and Fred W. Grupp. "Modernisation and Ethnic Equalisation in the USSR." *Soviet Studies* 36, no. 2 (1984): 159-184.

Kaiser, Robert John. *The Geography of Nationalism in Russia and the Ussr*. Princeton University Press Princeton, NJ, 1994.

Korobkov, Andrei. "State and Nation Building Policies and the New Trends in Migration in the Former Soviet Union." *The Carl Beck Papers in Russian and East European Studies*, no. 1702 (2003): 78.

Korobkov, Andrei V, and Zhanna A Zaionchkovskaia. "The Changes in the Migration Patterns in the Post-Soviet States: The First Decade." *Communist and Post-Communist Studies* 37, no. 4 (2004): 481-508.

Kritz, Mary M, Douglas T Gurak, and Min-Ah Lee. "Will They Stay? Foreign-Born out-Migration from New US Destinations." *Population research and policy review* 30, no. 4 (2011): 537-67.

Kritz, Mary M, and June Marie Nogle. "Nativity Concentration and Internal Migration among the Foreign-Born." *Demography* 31, no. 3 (1994): 509-24.

Lazear, E., 'Diversity and immigration' in Borjas, G. (ed.), *Issues in the Economics of Immigration*, Chicago (2000), pp. 117-142

Light, Matthew A. "What Does It Mean to Control Migration? Soviet Mobility Policies in Comparative Perspective." *Law & Social Inquiry* 37, no. 2 (2012): 395-429.

Locher, Lilo. "Migration in the Soviet Successor States." *Applied Economics Quarterly*, 48 no. 1 (2002): 67-84.

Makaryan, Shushanik. "Estimation of International Migration in Post-Soviet Republics." *International Migration* vol.53 no. 5 (2015)

Mansoor, Ali M, and Bryce Quillin. *Migration and Remittances: Eastern Europe and the Former Soviet Union*. World Bank Publications, 2006.

Martin, Terry, *The affirmative action empire: nations and nationalism in the Soviet Union, 1923-1939*. New York, (2001)

Mayda, Anna Maria. "International Migration: A Panel Data Analysis of the Determinants of Bilateral Flows." *Journal of Population Economics* 23, no. 4 (2010): 1249-74.

Messina, Claire. "From Migrants to Refugees: Russian, Soviet and Post-Soviet Migration." *Int'l J. Refugee L.* 6 (1994): 620.

Montalvo, Jose G, and Marta Reynal-Querol. "Ethnic Diversity and Economic Development." *Journal of Development economics* 76, no. 2 (2005): 293-323.

Münz, Rainer. "Ethnic Germans in Central and Eastern Europe and Their Return to Germany." *Diasporas and Ethnic Migrants: German, Israel and Post-Soviet Successor States in Comparative Perspective* (2003): 242-52.

Münz, Rainer, and Rainer Ohliger. *Diasporas and Ethnic Migrants : German, Israel, and Post-Soviet Successor States in Comparative Perspective*. Portland, Oregon: Portland, Oregon : Frank Cass, 2003.

Ortega, Francesc, and Giovanni Peri. "The Effect of Income and Immigration Policies on International Migration." *Migration Studies* 1, no. 1 (2013): 47-74.

Ottaviano, G. and Peri, G., 'The economic value of cultural diversity: evidence from US cities', *Journal of Economic geography* vol. 6 no. 1 (2006): 9-44

Patacchini, Eleonora, and Yves Zenou. "Ethnic Networks and Employment Outcomes." *Regional Science and Urban Economics* 42, no. 6 (2012): 938-49.

Petersen, A., 'The 1992-93 Georgia-Abkhazia War: A Forgotten Conflict', *Caucasian Review of International Affairs* vol. 2 no. 4 (2008), pp.187-199

Pilkington, H., *Migration, displacement, and identity in post-Soviet Russia,* London (1998)

Polian, Pavel. *Against Their Will : The History and Geography of Forced Migrations in the USSR* [in English]. Budapest ;: CEU Press, (2004)

Putnam, R., 'E pluribus unum: Diversity and community in the twenty-first century', *Scandinavian Political Studies* vol. 30 no. 2 (2007): 137-174

Rapawy, S., 'Ethnic reidentification in Ukraine', *US Bureau of the Census IPC Staff paper* no. 90 (1997)

Ravenstein, Ernest George. "The Laws of Migration." *Journal of the Statistical Society of London* 48, no. 2 (1885): 167-235.

Robertson, L. R. "The Ethnic Composition of Migration in the Former Soviet Union." *Post-Soviet Geography and Economy* 37, no. 2 (Feb 1996): 113-28.

Rowland, Richard H. "Economic Region Net Migration Patterns in the USSR: 1979-89." *Soviet*

geography 31, no. 9 (1990): 657-78.

Rowland, Richard H. "Geographical Patterns of the Jewish Population in the Pale of Settlement of Late Nineteenth Century Russia." *Jewish Social Studies* (1986): 207-34.

Sadomskaya, Natalia. "New Soviet Rituals and National Integration in the USSR." In Huttnebach (ed.), *Soviet Nationality Policies* (1990): 94-120.

Schwartz, Lee Robert. "Regional Population Redistribution and National Homelands in the USSR." In Huttenbach (ed.), *Soviet Nationality Policies: Ruling Ethnic Groups in the USSR* (1990): 121-161

Schwartz, Lee. "USSR Nationality Redistribution by Republic, 1979-1989: From Published Results of the 1989 All-Union Census." *Soviet geography* 32, no. 4 (1991): 209-48.

Shevtsova, Lilia. "Post-Soviet Emigration Today and Tomorrow." *International Migration Review* (1992): 241-57.

Siegel, Dina. *The Great Immigration : Russian Jews in Israel* [in English]. New Directions in Anthropology ;. Providence RI :: Berghahn Books, 1998.

Slezkine, Yuri. "The USSR as a communal apartment, or how a socialist state promoted ethnic particularism." *Slavic review* 53, no. 2 (1994): 414-452.

Smith, Anthony D. *Nationalism: Theory, Ideology, History*. Vol. 3. Polity, 2010.

Strayer, R., *Why Did the Soviet Union Collapse?: Understanding Historical Change*, New York (1998)

Suesse, Marvin., 'Adjusting the Size of Nations: Empirical Determinants of Separatism and the Soviet Breakup', *Journal of Comparative Economics* (forthcoming)

Suny, Ronald Grigor. "Nationalist and ethnic unrest in the Soviet Union." *World Policy Journal* 6, no. 3 (1989): 503-528.

———. *The Revenge of the Past: Nationalism, Revolution, and the Collapse of the Soviet Union*. Stanford University Press, 1993.

Taylor, Charles L, and Michael C Hudson. *World Handbook of Social and Political Indicators*. Ann Arbor, MI: ICSPR (1972).

The Economist, 19 November 2016 (retrieved from www.economist.com/international/2016/11/19/league-of-nationalists)

Tishkov, Valery. *Ethnicity, nationalism and conflict in and after the Soviet Union: The mind aflame*. Vol. 15. Sage, Oslo. (1997).

———. "Ethnic Conflicts in the Former USSR: The Use and Misuse of Typologies and Data." *Journal of Peace Research* 36, no. 5 (1999): 571-91.

———. "Forget The nation: Post-Nationalist Understanding of Nationalism." *Ethnic and Racial Studies* 23, no. 4 (2000): 625-50.

Tishkov, Valery, Zhanna Zayinchkovskaya, and Galina Vitkovskaya. "Migration in the Countries of the Former Soviet Union." *prepared for the Policy Analysis and Research Program of the Global Commission on International Migration* (2005).

Titma, M. K., and Nancy Brandon Tuma. *Migration in the former Soviet Union*. No. 22. Bundesinstitut für Ostwissenschaftliche und Internationale Studien, (1992).

Tolts, Mark. "Post-Soviet Aliyah and Jewish Demographic Transformation." Paper presented at the 15th World Congress of Jewish Studies, 2009.

Tuminez, A., 'Nationalism, ethnic pressures, and the breakup of the Soviet Union', *Journal of Cold War Studies* vol. 5 no. 4 (2003), pp. 81-136

UNDESA. "World Urbanization Prospects: The 2014 Revision." New York: United Nations Department of Economics and Social Affairs, Population Division, 2015.

Vanhanen, Tatu. "Domestic Ethnic Conflict and Ethnic Nepotism: A Comparative Analysis." *Journal of Peace Research* 36, no. 1 (1999): 55-73.

Wachtel, A., *Making a nation, breaking a nation: Literature and cultural politics in Yugoslavia*, Stanford (1998)

Williams, Brian Glyn. "Hidden Ethnocide in the Soviet Muslim Borderlands: The Ethnic Cleansing of the Crimean Tatars." *Journal of Genocide Research* 4, no. 3 (2002): 357-73.

Williamson, Jeffrey G. "Globalization, labor markets and policy backlash in the past." *Journal of Economic Perspectives* 12, no. 4 (1998): 51-72.

Winkler, Richelle L, and Kenneth M Johnson. "Moving toward Integration? Effects of Migration on Ethnoracial Segregation across the Rural-Urban Continuum." *Demography* 53, no. 4 (2016): 1027-49.

Zaionchkovskaya, Zhanna A. "Migration Patterns in the Former Soviet Union." Paper presented at the Conference Report Cooperation and Conflict in the Former Soviet Union: Implications for Migration, RAND, 1996.

Appendix 2.1 The List of Soviet *Oblasts*/*Krais*/ASSRs

No.	Union Republics	Economic Regions (*Raion*)	*Oblast*/*Kray*/ASSRs
1	Russian SFSR	Northern *Raion*	Arkhangelsk *Oblast*
2			Vologda *Oblast*
3			Murmansk *Oblast*
4			Karelian ASSR
5			Komi ASSR
6		North Western *Raion*	Leningrad *Oblast*
7			Novgorod *Oblast*
8			Pskov *Oblast*
9		Central *Raion*	Bryansk *Oblast*
10			Vladimir *Oblast*
11			Ivanovo *Oblast*
12			Kalinin *Oblast*
13			Kaluga *Oblast*
14			Kostroma *Oblast*
15			Moscow *Oblast*
16			Orel *Oblast*
17			Ryazan *Oblast*
18			Smolensk *Oblast*
19			Tula *Oblast*
20			Yaroslavl *Oblast*
21		Volga Vyatka *Raion*	Kirov *Oblast*
22			Gorky (Nizhny-Novgorod) *Oblast*
23			Mari ASSR
24			Mordovia ASSR
25			Chuvash ASSR
26		Central Black Earth *Raion*	Belgorod *Oblast*
27			Voronezh *Oblast*
28			Kursk *Oblast*
29			Lipetsk *Oblast*
30			Tambov *Oblast*
31		Volga *Raion*	Astrakhan *Oblast*
32			Volgograd *Oblast*
33			Kuibyshev *Oblast*
34			Penza *Oblast*
35			Saratov *Oblast*
36			Ulyanovsk *Oblast*

37			Kalmyk ASSR
38			Tatar ASSR
39		North Caucasian *Raion*	Krasnodar *Kray*
40			Stavropol Kray
41			Rostov *Oblast*
42			Dagestan ASSR
43			Kabardino-Balkar ASSR
44			North Ossetian ASSR
45			Chechen-Ingush ASSR
46		Ural *Raion*	Kurgan *Oblast*
47			Orenburg *Oblast*
48			Perm Kray
49			Sverdlovsk *Oblast*
50			Chelyabinsk *Oblast*
51			Bashkir ASSR
52			Udmurt ASSR
53		West Siberian *Raion*	Altai Kray
54			Kemerovo *Oblast*
55			Novosibirsk *Oblast*
56			Omsk *Oblast*
57			Tomsk *Oblast*
58			Tyumen *Oblast*
59		East Siberian *Raion*	Krasnoyarsk Kray
60			Irkutsk *Oblast*
61			Chita *Oblast*
62			Buryat ASSR
63			Tuvan ASSR
64		Far Eastern *Raion*	Primorsky Kray
65			Khabarovsk Kray
66			Amur *Oblast*
67			Kamchatka Kray
68			Magadan *Oblast*
69			Sakhalin *Oblast*
70			Yakut ASSR
71	Ukrainian SSR	Dnieper-Donetsk *Raion*	Lugansk *Oblast*
72			Dnipropetrovska *Oblast*
73			Donetsk *Oblast*
74			Zaporozhye *Oblast*
75			Kirovograd *Oblast*

76			Poltava *Oblast*
77			Sumy *Oblast*
78			Kharkiv *Oblast*
79		South West *Raion*	Vinnytsia *Oblast*
80			Volyn *Oblast*
81			Zhytomyr *Oblast*
82			Transcarpathian *Oblast*
83			Ivano-Frankivsk *Oblast*
84			Kyiv *Oblast*
85			Lviv *Oblast*
86			Rivne *Oblast*
87			Ternopil *Oblast*
88			Khmelnytsky *Oblast*
89			Cherkasy *Oblast*
90			Chernihiv *Oblast*
91			Chernivtsi *Oblast*
92		Southern *Raion*	Crimean *Oblast*
93			Mykolaiv *Oblast*
94			Odessa *Oblast*
95			Kherson *Oblast*
96	Lithuanian SSR	Baltic *Raion*	Litovskaia SSR
97	Latvian SSR		Latvian SSR
98	Estonian SSR		Estonian SSR
99	Russian SFSR		Kaliningrad *Oblast*
100	Georgian SSSR	Transcacuasian *Raion*	Tbilisi and others
101			Abkhazian ASSR
102			Adjara ASSR
103	Azerbaijanian SSR		Baku and others
104			Nakhichevanskaia ASSR
105	Armenian SSR		Armenian SSR
106	Uzbek SSR	Central Asian *Raion*	Andijan *Oblast*
107			Bukhara *Oblast*
108			Kashkadarya *Oblast*
109			Namangan *Oblast*
110			Samarkand *Oblast*
111			Surkhandarya *Oblast*
112			Syrdarya *Oblast*
113			Tashkent *Oblast*
114			Ferghana *Oblast*

115			Khorezm *Oblast*
116			Karakalpak ASSR
117	Kirghiz SSR		Issyk-Kul *Oblast*
118			Osh *Oblast*
119			Frunze and others
120	Tajik SSR		Dushanbe and others
121			Leninabad *Oblast*
122			Khalton *Oblast*
123	Turkmen SSR		Ashkabad and others
124			Mari *Oblast*s
125			Tashauz province
126			Chardjou *Oblast*s
127	Kazakh SSR	Kazakh *Raion*	Aktobe *Oblast*
128			Almaty *Oblast*
129			Chimkent *Oblast*
130			Dzhambul *Oblast*s
131			Dzhezkazgan *Oblast*s
132			Guryev *Oblast*
133			Karaganda *Oblast*
134			Kokchetav *Oblast*
135			Kustanai *Oblast*
136			Kyzyl-Orda *Oblast*
137			Pavlodar *Oblast*
138			Semipalatinsk *Oblast*
139			North-Kazakhstan *Oblast*
140			Taldy-Kurgan *Oblast*
141			Tselinograd *Oblast*
142			Ural *Oblast*
143			East Kazakhstan *Oblast*
144	Byelorussian SSR	Byelorussian *Raion*	Brest *Oblast*
145			Vitebsk *Oblast*
146			Gomel *Oblast*
147			Grodno *Oblast*
148			Minsk *Oblast*
149			Mogilev *Oblast*
150	Moldavian SSR	Moldavian *Raion*	Moldavian SSR

Appendix 3.1. Data and sources

Data	Unit	Sources
Net migration	persons per 1000	Author's calculation
Share of an ethnic group	%	1979, 1989 USSR census, 2000 round censuses of FSU states
Population	persons	1979, 1989 USSR census, 2000 round censuses of FSU states
Real Wages	at current dollars	*Regiony Rossii* 2002, CISstat 2008
Employment	%	*Regiony Rossii* 2002, CISstat 2008
Conflicts	1 or 0	Author
Ethnic fractionalization	ELF = 1- $\sum_i s_i$	Author's calculation from census data
Ethnic polarisation	RQ = 1- $\sum_i (\frac{1/2-s_i}{1/2})^2 s_i$	Author's calculation from census data
Food consumption	Kg	*Regiony Rossii* 2002, CISstat 2008
Meat consumption	Kg	*Regiony Rossii* 2002, CISstat 2008
Distance to Moscow	Km	*Regiony Rossii* 2002 freemaptools.com/measure-distance
Urbanization rate	%	*Regiony Rossii* 2002, CISstat 2008
Dummy for ports	1 or 0	Author
Students in secondary education	# per 1,000	*Regiony Rossii* 2002, CISstat 2008
Students in higher education	# per 1,000	*Regiony Rossii* 2002, CISstat 2008
Number of doctors	# per 1,000	*Regiony Rossii* 2002, CISstat 2008
Hospital beds	# per 1,000	*Regiony Rossii* 2002, CISstat 2008
Crime rates	# Per 1,000	*Regiony Rossii* 2002, CISstat 2008
Housing space per person	M^2	*Regiony Rossii* 2002, CISstat 2008
Passenger distance by bus per capita	passenger kilometer	*Regiony Rossii* 2002, CISstat 2008
mean temperature, January	ºC	*Regiony Rossii* 2002 www.weatherbase.com
mean temperature, July	ºC	*Regiony Rossii* 2002 www.weatherbase.com